Western Industry

July 1953

Hardboard panels enroute to heating chamber
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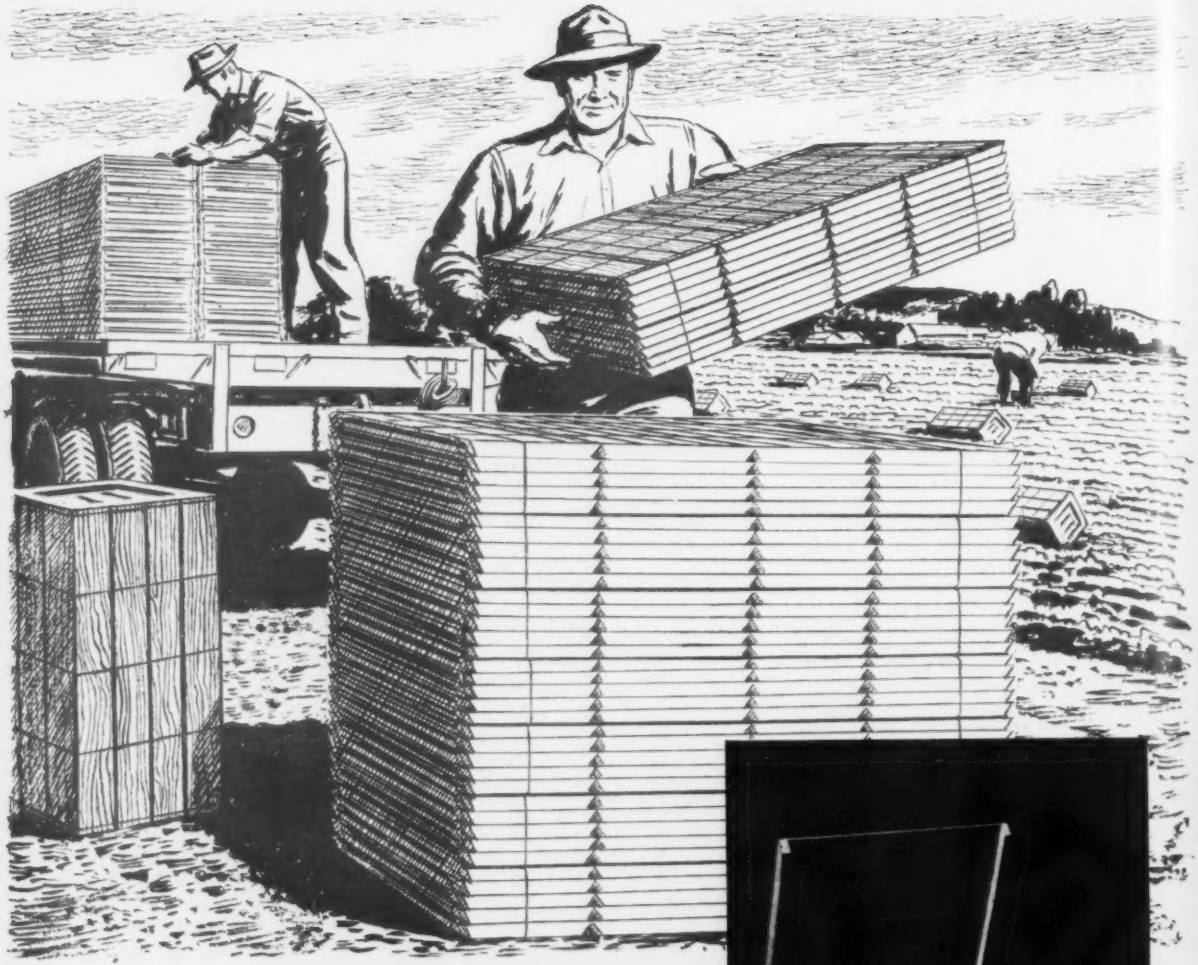
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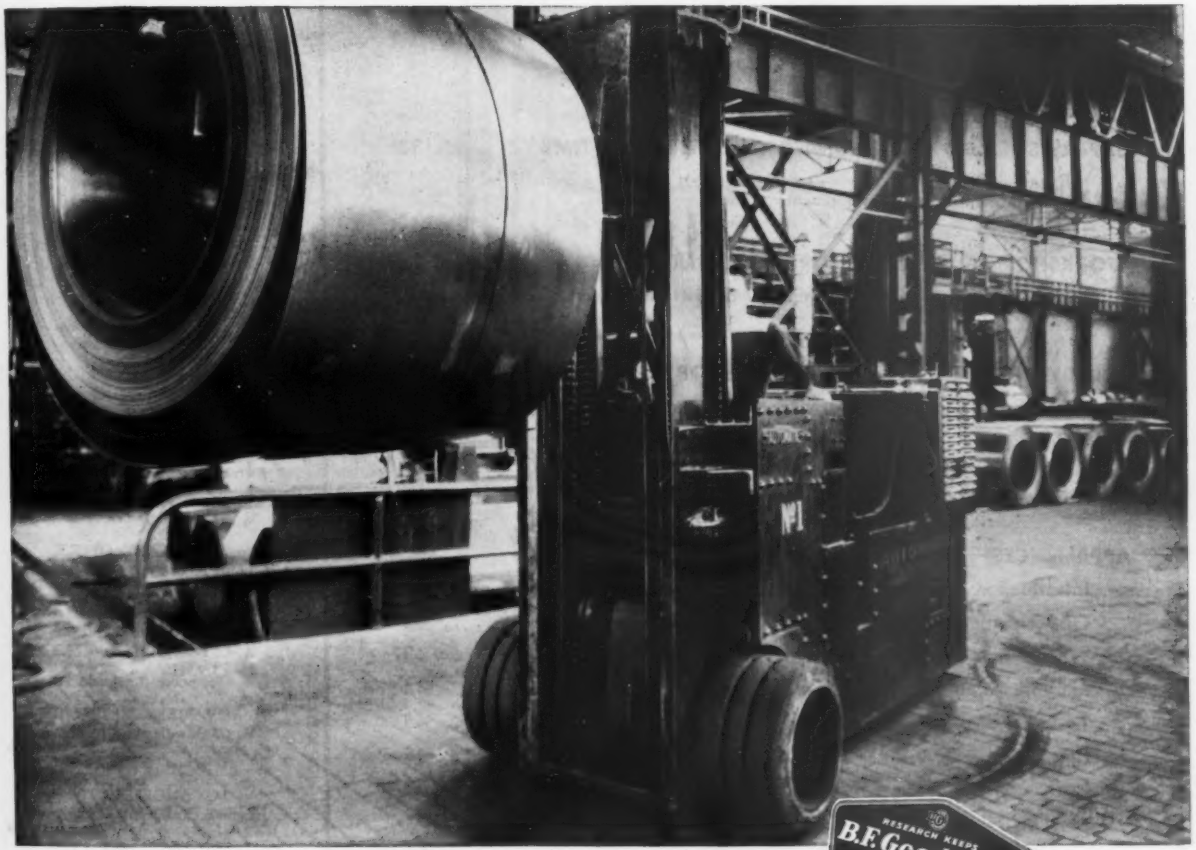
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Western Industry

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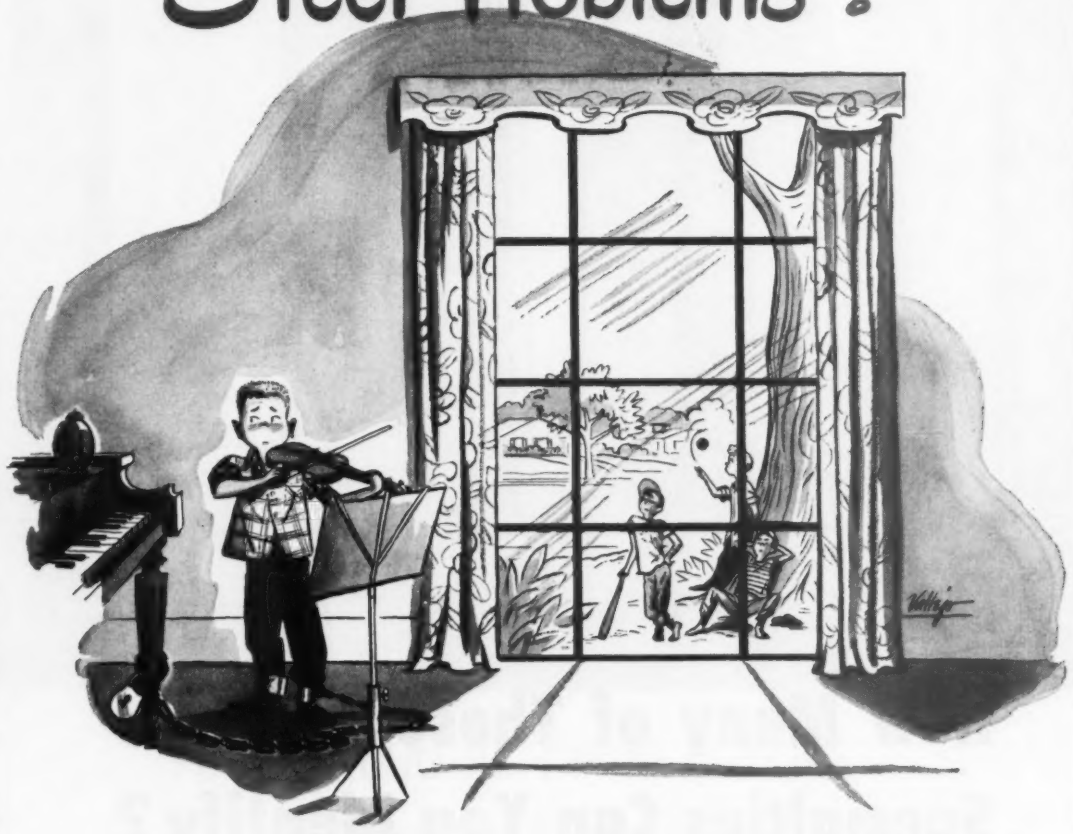
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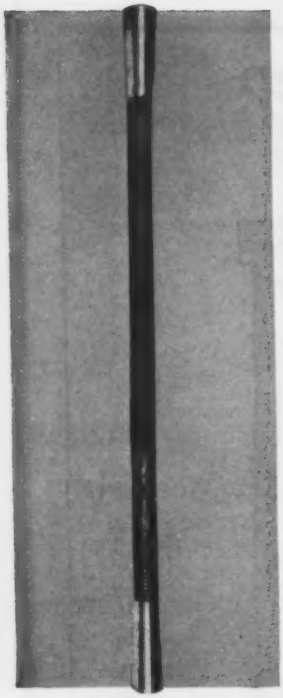
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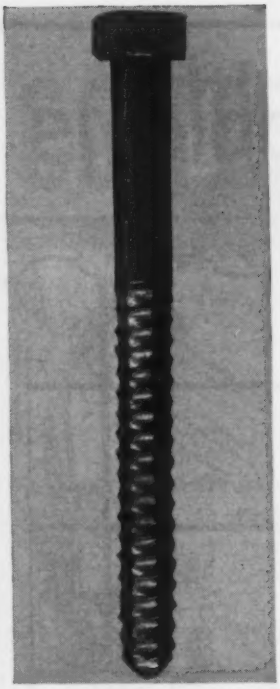


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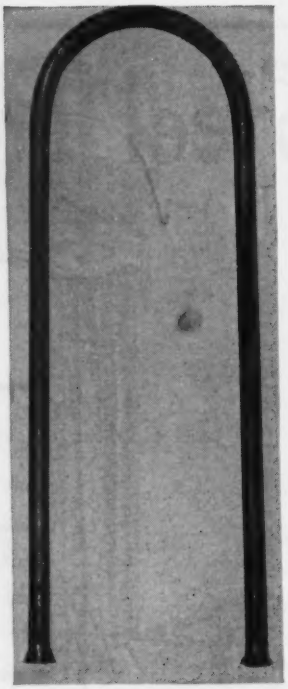
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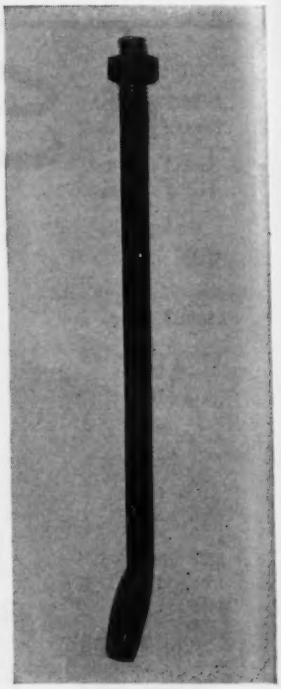
"A" Link Forging, Ladder Rung, Lug Wrench Forging, or Band Wheel Spoke?



"B" Coil Bolt, Mine Roof Bolt, Lag Bolt, or Screw Spike?



"C" Hanger Pin, Round Bend U-Bolt, Rock Pin U-Bolt, or Hair Pin Anchor Bolt?



"D" Shaft Forging, Turnbuckle Stub, Brazier Leg, or Flat End Bolt?

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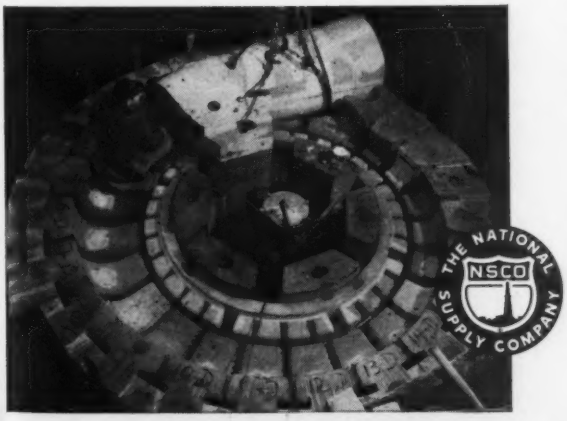


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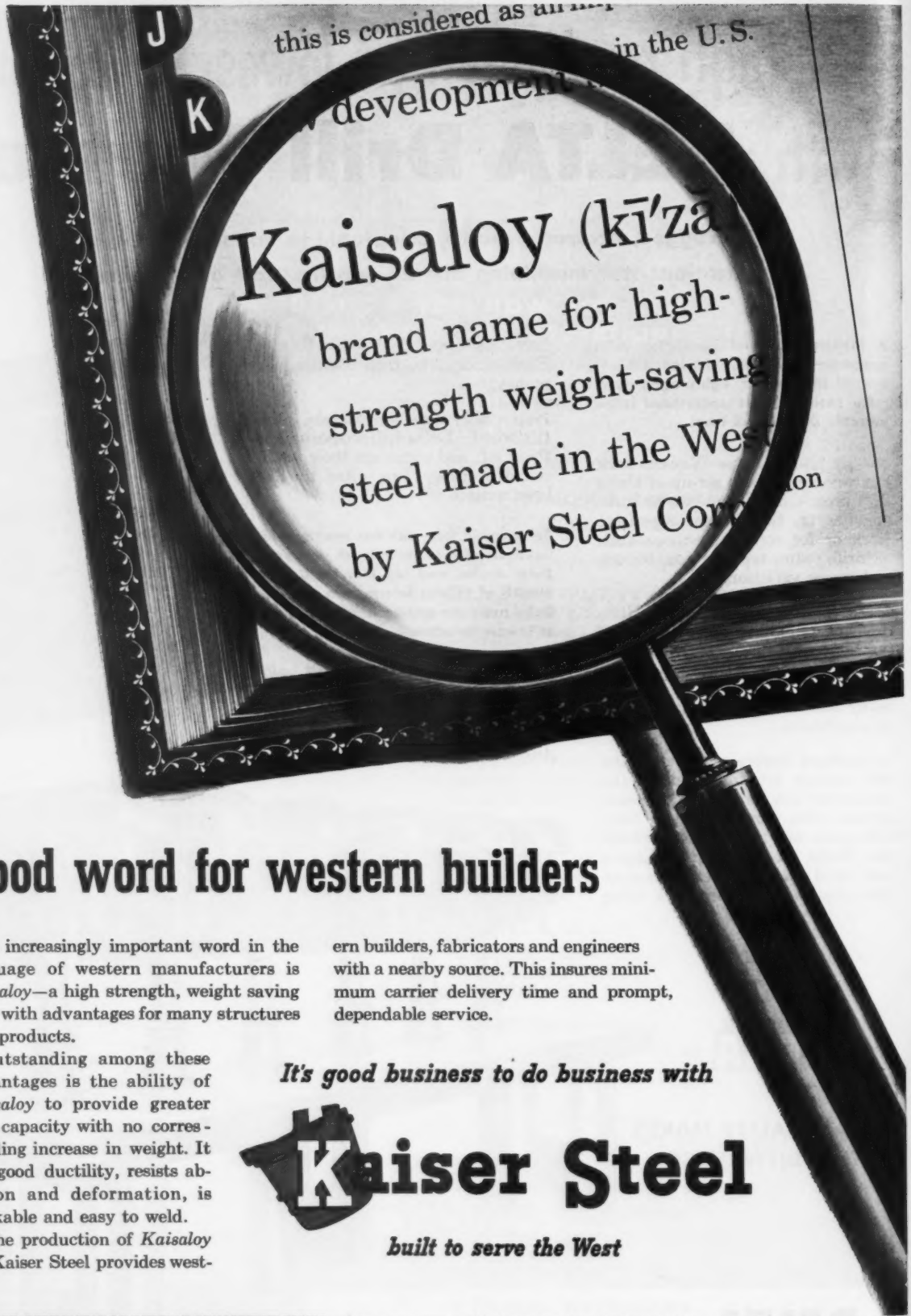


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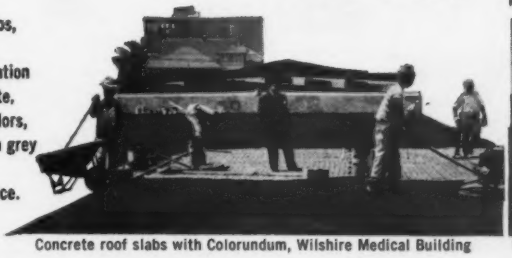
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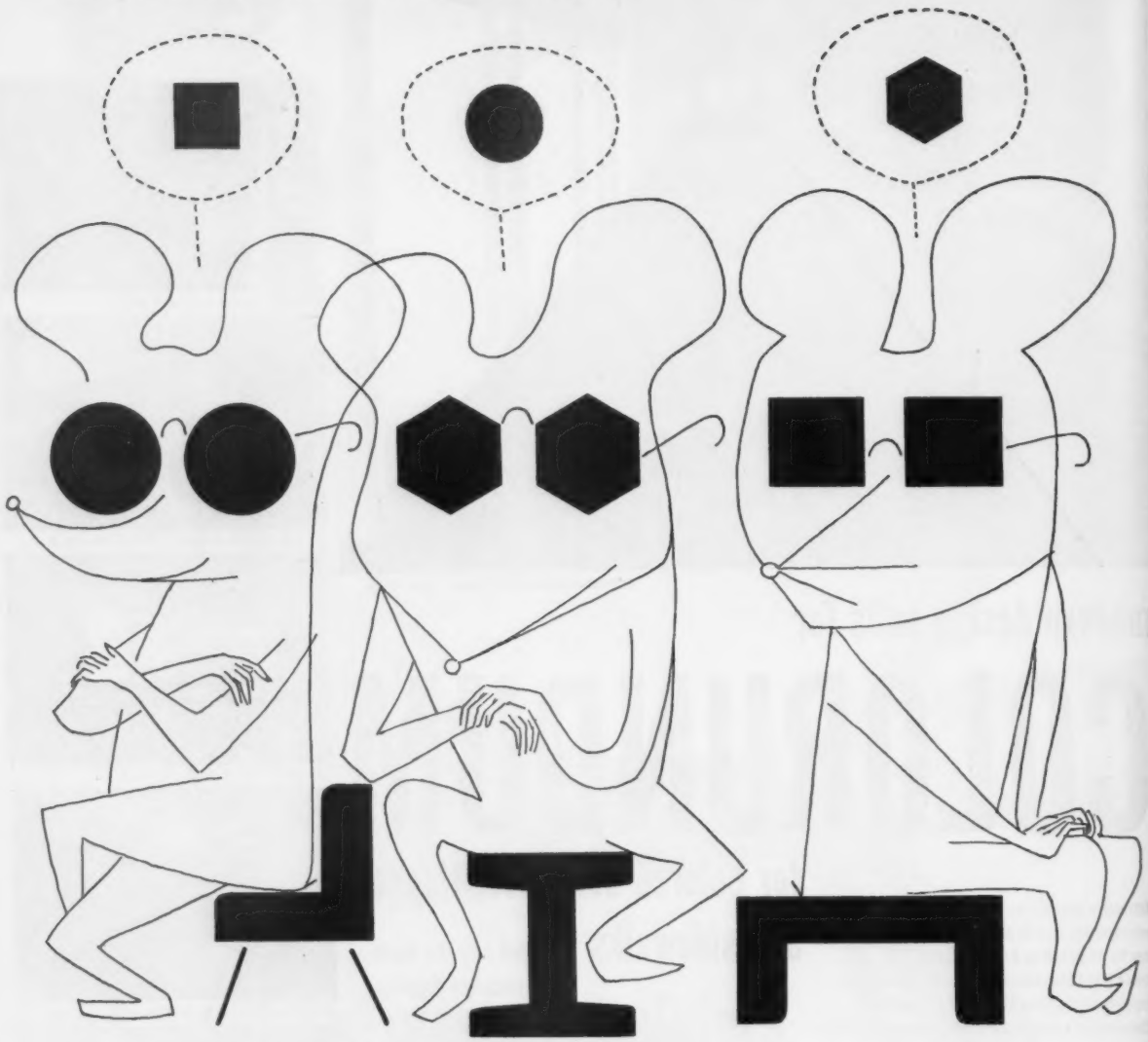
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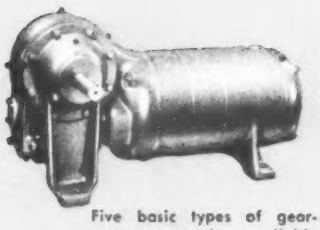


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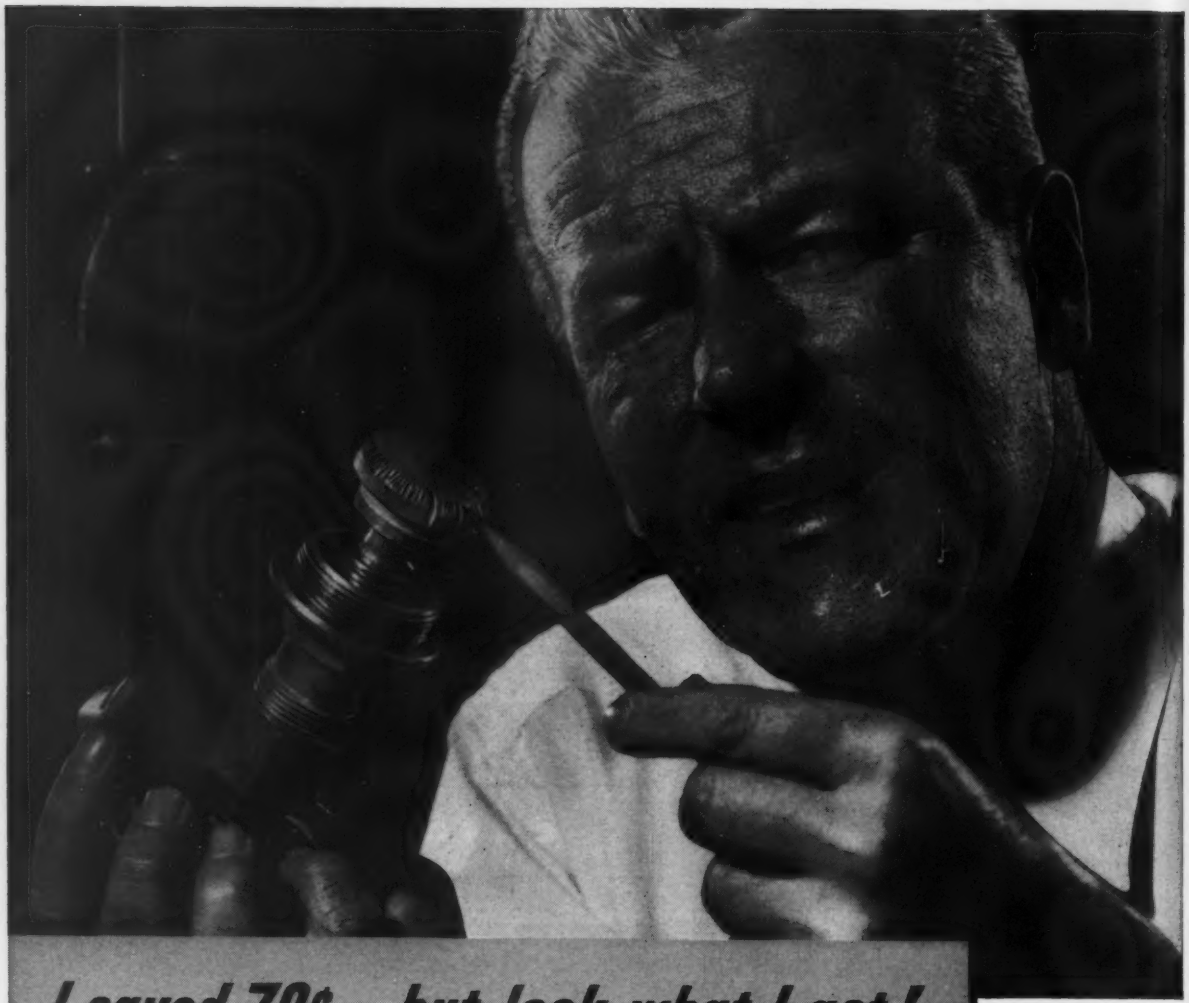
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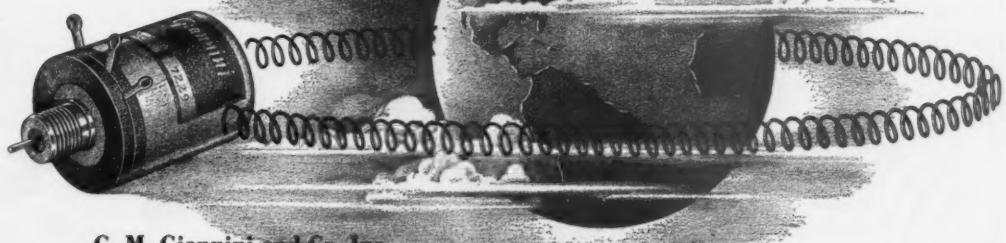


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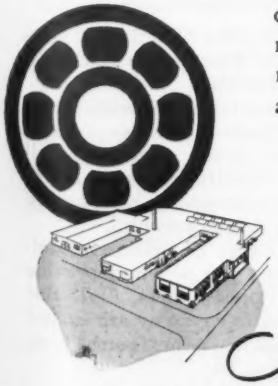
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A 50-yard dash with a potato on a spoon! An exciting bit of Americana—but it's not the

World's Greatest Potato Race

That's the 2200-mile dash on the Santa Fe with 1,350,000,000 potatoes

Somebody east said, "Pass the potatoes!"

Out in California, the fertile San Joaquin Valley heard them. And look what happened.

Santa Fe started moving 14,000 to 15,000 carloads of potatoes to hungry markets all over the Mid-west and East. 36,000 to 40,000 pounds to a carload. As high as 550 carloads per day at peak of harvest. That's more than 1,350,000,000 potatoes. And that's a lot of spuds.

Bag 'em. Load 'em. Roll 'em. And hustle. Somebody east said, "Pass the potatoes!"

MARKETS ARE PERISHABLE, TOO

From America's largest fleet of refrigerator cars owned by an individual railroad, these yellow Santa Fe "reefers" are dispatched to the "Potato Capital of the West."

There the cars are cleaned . . . checked . . . loaded . . . switched. And iced fast (a car a minute, if you please). These potatoes can't wait!

In servicing the cars as they speed east, new icing docks at Bakersfield and Needles, Calif., Belen, N. Mex., Waynoke, Okla., and Kansas City work the clock around. Electronically-controlled "hump" yards speed the switching.

SANTA FE PRECISION—SANTA FE SPEED

On-time delivery calls for full-time precision to keep these schedules "on the advertised."

After the potatoes come the wheat . . . citrus fruits . . . grapes . . . melons . . . and green vegetables all year long—flooding east from Santa Fe country to you. Everything from avocados to zucchini.

It costs Santa Fe millions of dollars to serve you so—and provide you with Super Chiefs, too! But we're proud to say they are earned dollars. Not one penny comes from the taxes you pay.

SANTA FE SYSTEM LINES

Santa Fe

PROGRESS THAT PAYS ITS OWN WAY

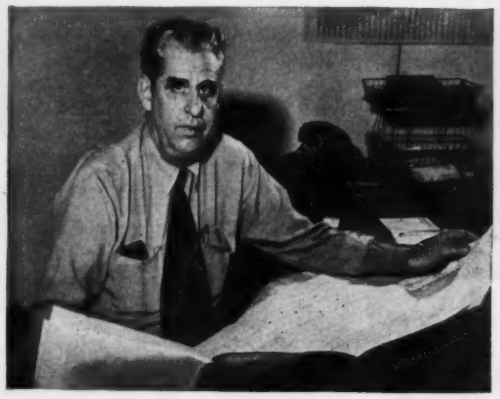
Cutting Metal?..."SKIL Saw saves 9 hours, pays for itself on first job!"

says **Alton J. Hofstad,** manager
Kolstad Co., Minneapolis, Minn.

largest truck body builder in Minnesota

"A recent order for 13 trailers required cutting corrugated aluminum," says Mr. Hofstad. "Cutting by hand was a ten-hour job. We tried a SKIL Saw Model 825 with an aluminum-cutting blade and finished in one hour. The saw paid for itself on this first job! In addition, we are using four SKIL Disc Sanders, ten SKIL Drills and two SKIL Drivers."





"SKIL Tools outlast all others,"

says Superintendent E. Livingston

Twenty-five years in this business makes Mr. Livingston an authority on power tools. He states, "I have used SKIL tools for *many years* and know first hand of their excellent performance, durability and the many savings they give in reduced production costs. When we started this firm, we bought SKIL tools and other makes. Hard use burned out the others, but SKIL had what it takes. I specially like the slow speed model SKIL Drills for slower speeds and maximum power," he concludes.

Phone, write or see your SKIL Distributor or nearby SKIL Factory Branch for complete information

SKIL
PORTABLE TOOLS

SKIL Products are made only by SKIL Corporation
formerly SKILSAW, Inc.
5033 Elston Avenue, Chicago 30, Illinois
3601 Dundas Street West, Toronto 9, Ontario
Factory Branches in All Leading Cities



"You Can See the Cut with a SKIL Saw," says Robert Myhre as he cuts through extruded aluminum. "That's all-important for accurate work."

OSBORN



Which of these versatile brushes will cut your costs?

Hard-to-get-at jobs are simplified . . . costly hand operations are eliminated . . . when you switch to one of these special-purpose Osborn power brushes.

These versatile wire brushes are just a few of the complete Osborn line of power brushes for every need. Your **O**sborn **B**rushing **A**nalyst will gather necessary facts in your plant . . . study your production equipment and recommend the most efficient, economical power brushing techniques.

The small Osborn brush shown in operation enables one man to do the work of seven men. Output per man went up 700% in this aircraft application of removing zinc chromate priming from around rivet holes in wings and fuselages. Formerly this job was done by hand with small sandpaper discs.

Such results are duplicated every day by **O**sborn **B**rushing **A**nalysts.



Osborn wire brush, automatically located, removes zinc chromate from around rivet holes in aircraft production.

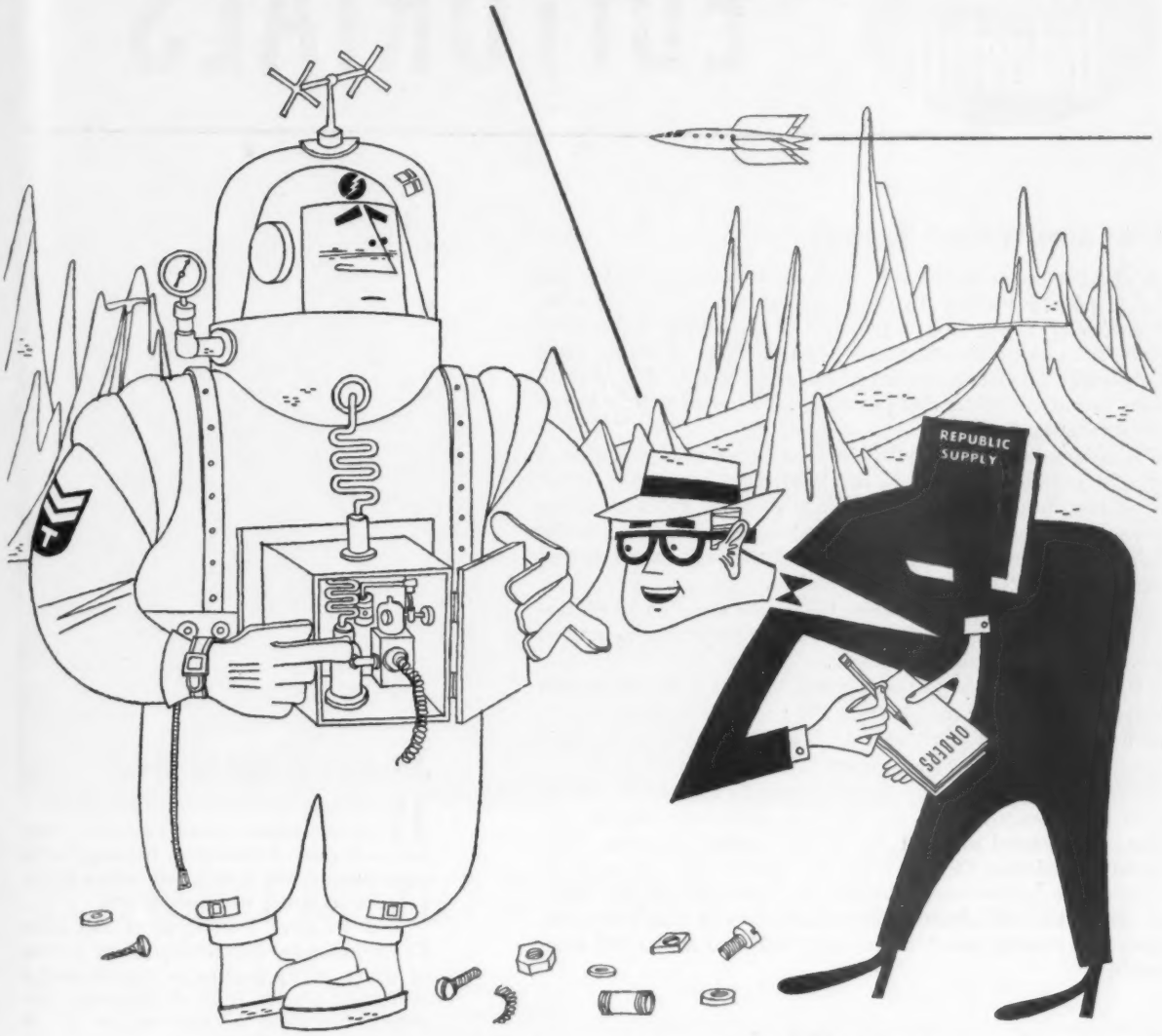
They can solve *your* brushing problems of product cleaning, burr removal, roughing, polishing or finishing with similar startling economies. For complete information at no cost, call your nearby Osborn representative or write to *The Osborn Manufacturing Company, Dept. Q-4, 5401 Hamilton Ave., Cleveland 14, Ohio.*

Osborn Brushes

OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES

CARRIED IN STOCK BY LEADING INDUSTRIAL DISTRIBUTORS IN WESTERN STATES

need hard-to-locate items?



LET REPUBLIC SUPPLY YOUR INDUSTRIAL NEEDS!

For cosmic missiles or common mallets —the moral remains the same—Let REPUBLIC SUPPLY your industrial needs! Republic stocks more than 35,000 standard and special industrial products —the pride of 306 leading American manufacturers. If it's available anywhere —you can get it from Republic Supply ...but *fast!*

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Western Industry

EDITORIALS

Standardization Trends

MAYBE some day we will sneak up on the metric system and adopt it without any warning, incredible as that may seem. A speech by Roger E. Gay, president of the American Standards Association (his main vocation is being president of Bristol Brass Corporation), before a meeting of the association held in Los Angeles in May, suggests that possibility, in view of various trends toward standardization.

It is interesting to note that he found some good examples of standardization right here in the West. One was about our oil companies, who used to buy specially designed types of underground tanks for service stations, until a Union Oil man saw the light, got the rest of the companies and the tank manufacturers together, and a common standard resulted.

This enabled the oil companies to buy the tanks on an off-the-shelf basis, while the tank manufacturers no longer had to keep an inventory of special-size steel sheets.

He cited also the reduction by G-E in the number of aircraft instrument generator models from 102 to two, and in speed indicators for jet planes from 260 to 11. These instruments are used in substantial quantities by the airplane companies on the coast.

Even the motion picture industry, usually considered a crazy quilt in efficiency matters, has its good points, according to Mr. Gay, who pointed out that one of the original purposes of the Society of Motion Picture Engineers when it was organized in 1916 was to further standardization, and that the combined fields of motion and still photography account for one standard out of every six, ranking ahead of electrical, civil and mechanical engineering.

Another Straw in the Wind

"ONE OF THE ACTIVITIES to which the Association has devoted much time and effort during the past year has been to keep the government and the various branches of the Military out of the plating business," says the National Association of Metal Finishers in one of its latest Washington releases.

"Several months ago, a complaint was made by the Association that the government was installing equipment on the West Coast in one of the government plating plants to take care of plating which could be furnished by the job plating industry. We are now pleased to announce that one of our members on the West Coast is now making arrangements to take over this plating plant."

This sounds like a good step in educating government people not to let their enthusiasm carry them over the line into encroachments on private industry. But it will be a long, slow process to reach the point where government officials always will be alert to stay on their own side of the line, and an equally long, slow process to educate private industry not to induce the government to provide an undeserved service because it can be gotten cheaper that way.

Another Bridge to Cross

BEFORE some of President Eisenhower's cabinet officers could be seated, they had to dispose of their stock holdings in the companies of which they had been officials, in order to comply with federal law.

Now we have Tom Lyon of Salt Lake City rejected for directorship of the Bureau of Mines, partly because he was drawing a retirement pension from an Anaconda subsidiary for whom he had worked for 34 years.

How is the government going to make use of the services of other capable men who are drawing retirement pensions? And are corporations going to be willing to provide pensions for men who may be later in government positions where they will have to make decisions not necessarily agreeable to their former employers?

If this growing reservoir of technical and administrative brains is to be efficiently tapped for the benefit of the entire country, and it does offer great hopes along that line, then this bridge must be crossed some time, but how?



PLUG A HOLE AND KEEP IT PLUGGED WITH PERMANENTE 84!

You can *keep* holes plugged, *slash* down-time for hot repairs, *boost* steel furnace production with Permanente 84—the West's largest selling ramming and patching mix. Here's why:

Permanente 84 shrinks less than 1%—even at temperatures as high as 3000° F—because the periclase grains are pre-shrunk to maximum density and the patented bond does not form appreciable liquids below 3000° F.

This unsurpassed volume stability and refractoriness of Permanente 84 means that fewer repairs are needed between heats. And faster repairs are possible because Permanente 84 is easy to use.

Act now! Start using Permanente 84 for open hearth and electric steel furnace rebuilds as well as for bottom, bank and tap hole maintenance. Get that extra tonnage.

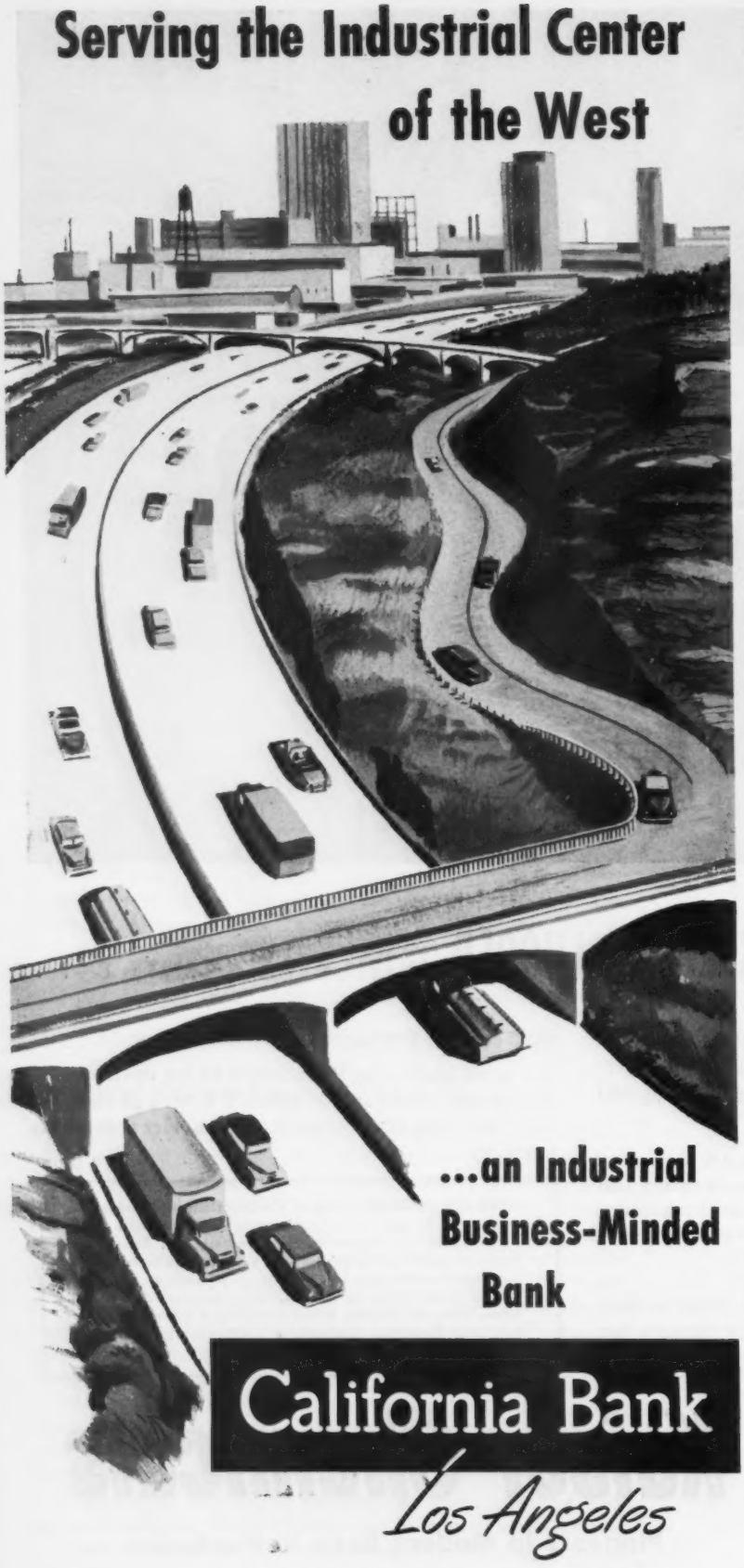
SEND FOR BOOKLET giving all the important advantages of Permanente 84 and the companion material, Permanente 165—both western developments. Upon request, your Kaiser refractory engineer will promptly offer you research, design and installation service to help you obtain more steel tonnage per year, at lower bottom cost per ton. Call or write principal sales offices: *Chemical Division*, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.



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LETTERS

Contributions to this column from our readers are welcome. Names will be withheld from publication if so requested. Unsigned letters, however, will be disregarded.

Coal information

Editor, *Western Industry:*

The article entitled "New Uses for Western Coals" published in the June issue of *Western Industry* is an excellent presentation and should be of great interest to Western industry and coal producers.

We are presenting a paper on the general fuel economics of the eleven Western States at the meeting of the Rocky Mountain Coal Mining Institute in Glenwood Springs, Colorado, on June 28. I think your article would be of interest to the delegates and I would appreciate your sending us 50 additional tear sheets for distribution at this meeting.

I appreciate very much the care that has been taken in preparing your accurate description of our process and in the interesting manner in which it has been written.

V. F. PARRY
Chief, Coal Branch, Fuels Technology Div., Reg. IV, Bureau of Mines, Denver 14, Colo.

Plant design pleases

Editor, *Western Industry:*

I am tremendously pleased by the manner in which you covered the Institute on Industrial Plant Design. Doubtless those who participated will be equally pleased. Preliminary plans are presently being developed for a second Institute early next year.

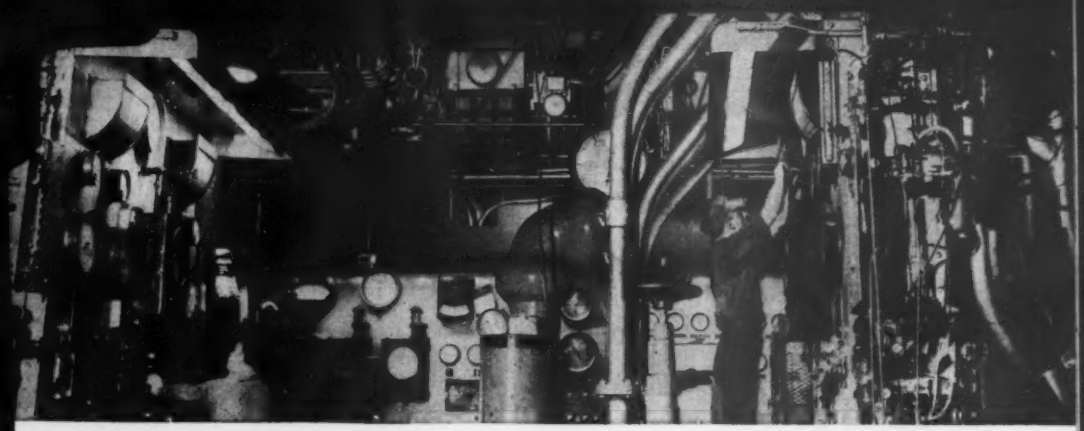
FRANKLYN B. COLE
Manager, Business Service Department, Los Angeles Chamber of Commerce

Faithful interpretation

Editor, *Western Industry:*

Your presentation of the Plant Design Section in your May issue of *Western Industry* was excellent, and we appreciate the publicity given our firm, as a participant. We feel that the summarized form was a faithful interpretation of our comments. I wish that I could offer some constructive criticism but feel that the entire job was very well done.

L. W. DAVIDSON
Donald R. Warren Co., Engineers, Los Angeles



STOP COSTLY PIPE-LINE FAILURES

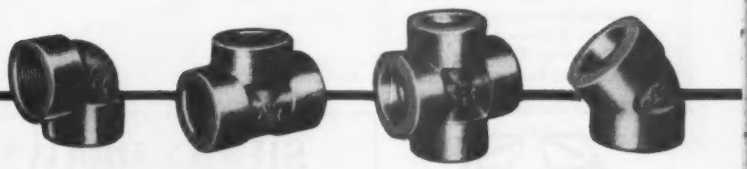
No one knows better than you the increasingly high cost of unscheduled outages due to pipe-joint failures. But do you know just how far it is possible to go toward *eliminating* such failures throughout the life of your piping systems? The answer to this critical problem in production and maintenance costs is FORGED STEEL FITTINGS by the pioneer firm of Watson-Stillman—consultants and suppliers to *all* major industries concerned with pipe joining and maintenance.

Watson-Stillman fittings are FORGED for maximum strength, toughness, and resistance to corrosion, vibration, and shock. More uniformly precise in all dimensions, they are the modern go-between wherever pipes meet permanently.

Leading Refineries, Chemical Plants, Public Utilities, Refrigeration and Industrial Plants throughout the world stay on stream at lowest cost-per-year with the famous Double-Diamond Fittings by Watson-Stillman. Write for literature.

Screw-End and Socket-Weld Types

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More Good News for the West!



NOW YOU CAN GET MX

FREE-MACHINING COLD DRAWN BAR STOCK

from...

SIERRA

The Western Mills That Produce for Western Industry

Rolled by United States Steel!

Cold Finished by SIERRA!

for products such as these...



ONLY INDEPENDENTLY OWNED COLD FINISHING BAR MILLS IN THE WEST



with
Complete Metallurgical Service
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Production Flexibility
Fast Delivery

That's right!

This marvelous development in free-machining screw stock is now brought to you on the West Coast, in cold drawn form, in all bar stock shapes through the cooperation of Sierra Drawn Steel Corp., and United States Steel.

Here's what it means to you...

Output and Efficiency Rise... Costs Drop!

MX supplements the regular Sierra line of cold drawn bars of B-1113 and similar steels. Parts made from MX *definitely cost less per unit* by improving production rates and efficiency, operating economy, and surface finish.

ACT NOW!

It will pay you to investigate MX... write or phone for complete information today!

MX BAR STOCK GIVES YOU—

GREATER MACHINABILITY

...up to 33% faster speeds
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LONGER TOOL LIFE

...often more than double that of B-1113 or comparable screw machine stock.

INCREASED PRODUCTION

...up to 54% greater output

•

Less Machine Down-Time
Smoother, Brighter Finish
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Greater Operating Efficiency
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Quality and Service for Western Industry

Fully Crowned Tooth Design Can Be Used To Solve Your Long-Standing Coupling Problem

A major improvement in gearing for power transmission—a fundamental improvement in gear tooth design that practically eliminates all "end tooth and tip" contact and provides greater freedom of axial movement distinguishes Amerigear Couplings from common gear-type couplings. Amerigear Couplings offer many more advantages than are obtainable with the common basic designs. The Amerigear Crowned Tooth Design can be applied wherever couplings are required. There are many instances where this design has been utilized to simplify power transmission mechanisms and add reliability to their performance in a measure heretofore found impossible.

If your problem arises from excessive offset or angular misalignment, tight back lash requirement, space limitations, high speeds and loads, or any combination of these, the solution is best made by the utilization of the Amerigear Fully Crowned Tooth. Amerigear engineers are available for consultation.

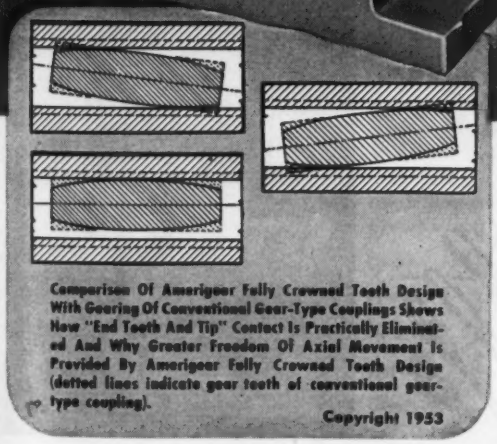
AMERICAN FLEXIBLE COUPLING COMPANY

Originator of the Amerigear Fully Crowned Tooth
Sales Offices in Principal Industrial Centers

ERIE, PA., U. S. A. *AFFILIATE J. A. ZURN MFG. CO.*

Exclusive Pacific Coast Sales Agent **ZURN WESTERN SERVICES, INC.**
1048 Folsom Street, San Francisco 3, California





Comparison Of Amerigear Fully Crowned Tooth Design With Gearing Of Conventional Gear-Type Couplings Shows How "End Tooth And Tip" Contact Is Practically Eliminated And Why Greater Freedom Of Axial Movement Is Provided By Amerigear Fully Crowned Tooth Design (dotted lines indicate gear teeth of conventional gear-type coupling).

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AMERICAN FLEXIBLE COUPLING COMPANY
ERIE, PA., U. S. A.

Please send me further information regarding AMERIGEAR COUPLINGS with the fully Crowned Teeth and Catalog No. 501.

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Company_____

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City_____ _____ Zone_____ State_____

Please attach to your business letterhead

Cut nut-running time 75%



*Snap-on Electric IMPACT WRENCH

The fastest wrench you can put in the hands of a maintenance or production worker. Swiftly runs nuts or screws on or off—cuts costs—makes tough jobs easy. The Snap-on impact wrench delivers up to 2,000 powerful rotary blows a minute without twist or hammer shock to operator. Sets nuts solidly, or quickly reverses to break tough ones loose. ½" square drive takes sockets ⅜" to 1 1/16"—many accessory tools available. 2 models—115 volts, 220/230 volts. Available through Snap-on factory branch warehouses in principal industrial centers. Write for Snap-on Industrial catalog and new catalog of 4,000 hand and bench tools for production and service.



SNAP-ON TOOLS CORPORATION
8032-G 28th Ave., Kenosha, Wis.

*Snap-on is the trademark of Snap-on Tools Corporation.

THIS MONTH'S COVER

HARDBOARD, another Western forest product

HARDBOARD is the result of grinding wood into fibers, cooking it with resins and finally pouring it into a hot mould. The resulting board is a smoother, stronger, tougher forest product with innumerable uses.

Douglas Fir fibers are refined and welded together in a panel form that demonstrates numerous qualities of the source material wood, with improvements made possible by modern technology.

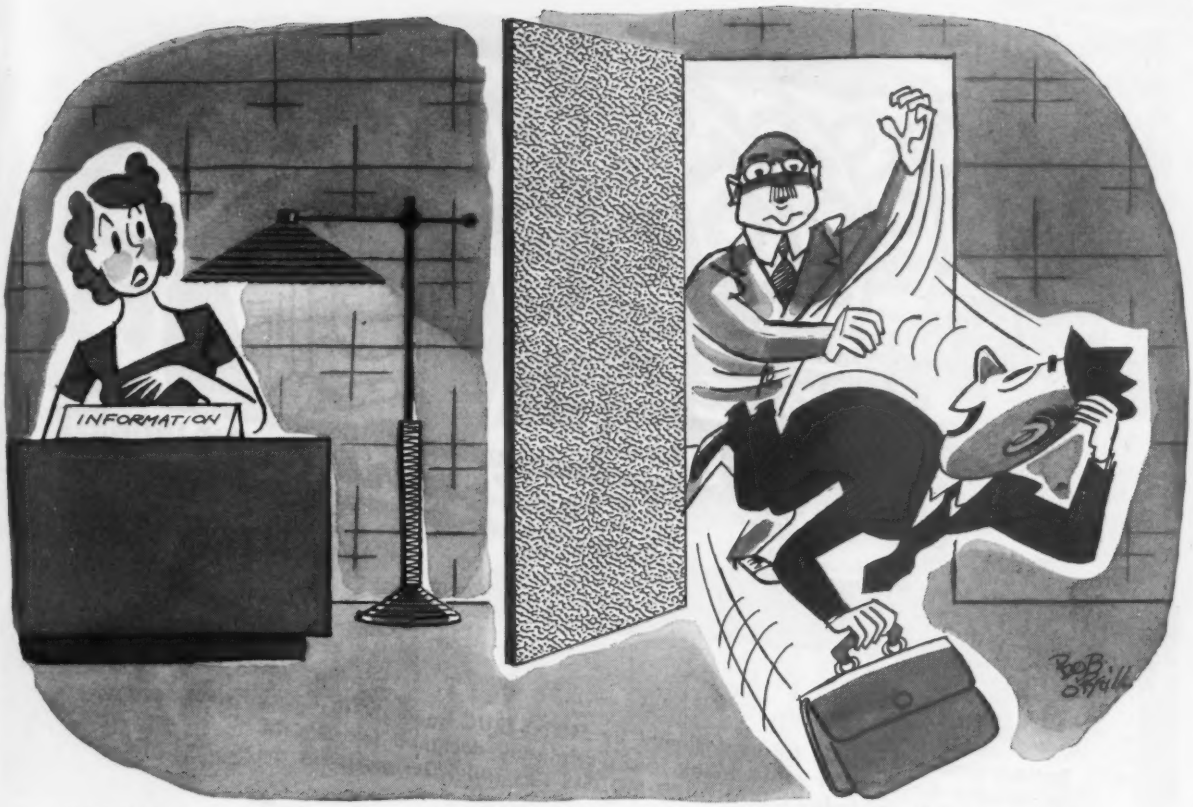
Treated hardboard is made by impregnating selected hardboard with a hot mixture of blended weather-resistant oils and resins. After standing to gain maximum penetration, the panel is heat treated at over 300 deg. F. This fixes the impregnating materials and develops maximum water and weather resistance of the wood fiber.

After heat treatment, the panel is exposed to controlled moisture conditions to bring about moisture content uniformity of about 6%.

Forest Fiber Products Co. makes both treated and untreated hardboard.

PRODUCTION of Forest Hardboard at the Forest Fiber Products Co., Forest Grove, Oregon, has been doubled by the addition of ten 5-ton plates to the 4-story high press. Twenty panels measuring 4 x 16 ft. are pressed in a single operation.





"I'll be back next week, Mr. Grigsby. I'm fascinated with your new Leatherwood door."

all through the plant...

MASONITE PRESDWOOD

solves maintenance problems!

There's a lot of appeal in a flush door faced with Masonite Leatherwood and then painted in tone-on-tone colors. Embossed surface simulates rich-looking Spanish-grain leather.

This is just one of the many ways you can use the helpful family of Masonite Presdwood® Products. Today, all 33 types and thicknesses are hard at work in smoothing out production problems...as well as giving a bright new look to reception rooms, offices, halls and washrooms.

We've prepared an illustrated booklet showing how these all-wood hardboards can help speed the work in plants of all kinds. Mail the coupon for your free copy.



WESTERN HARDBOARDS FOR WESTERN INDUSTRY

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Please send me your free booklet on "How to Improve Factory Methods with Masonite Presdwood."

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County.....*State*.....

"Masonite" signifies that Masonite Corporation is the source of the product

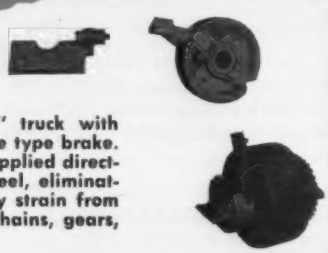
MOTO-TRUC

Designers FOR THE INDUSTRY

PATENTED

Battery powered walkie trucks designed by MOTO-TRUC have set the pace in Industry for over 16 years. Many trucks originally designed for SPECIAL APPLICATIONS are today's STANDARD MODELS . . . truly, Designers for the Industry.

Equally important to specific truck applications are component truck parts. Pictured below are just a few of these MOTO-TRUC features.



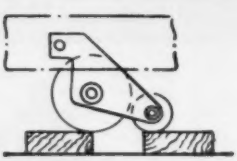
The only "walkie" truck with Internal-Automotive type brake. Braking power is applied directly to the drive wheel, eliminating all unnecessary strain from the motor shafts, chains, gears, and sprockets.



Electric Hydraulic Pump is self contained, direct drive from motor to pump. Pump will lift 4,000 to 6,000 lbs. in a matter of seconds.



Roller Grip control affords FINGER-TIP control in operating forward and backward movement as well as the hydraulic lift.



Nydegger Shackles provide smoother operation in and out of elevators and over slated floors. (Optional)

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Pallet . . . Platform . . . Hi-Lift Trucks

LARGEST EXCLUSIVE MANUFACTURER OF "WALKIES"

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Large or small, your plant will benefit from General Petroleum's policy of the RIGHT lubricant in the RIGHT place at the RIGHT time. Backed by more than 87 years of lubrication experience, G. P. today serves most of the West Coast's leading industrial plants. Call your nearest G. P. office today for a discussion of your production problems.



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YEARS-AHEAD
Cutting Oils that Cut Costs

How many machining operations in your plant? How many different metals are you working? Maybe one correct Richfield cutting oil will handle all of them. Here are some Richfield advantages:

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CALENDAR OF MEETINGS

AUG. 2-9—*Western Conference on Apprenticeship*, Balboa Park, San Diego. Management contact Robt. C. Girard, California Metal Trades Assn., 1706 Broadway, Oakland.

AUG. 4-8—*International Association of Electrical Leagues*, San Francisco. Contact Victor W. Hartley, 601 W. Fifth St., Los Angeles 17.

AUG. 17-22—*Institute of Radio Engineers Manufacturers Assn.* and *West Coast Electronics*, regional conference and exhibit in San Francisco. Contact Mr. Heckert Parker, exhibit manager, 1980 Jefferson St., San Francisco.

AUG. 19-21—*Western Electronic Show & Convention* at Civic Auditorium, San Francisco. Contact Frank Haylock, 58 W. Poplar St., San Mateo, Calif.

AUG. 24-28—*First Western X-ray Diffraction School* at Sir Francis Drake Hotel, San Francisco. Contact North American Philips Co., Inc., 750 S. Fulton Ave., Mt. Vernon, New York, sponsor.

SEPT. 9-11—*Pacific Coast Gas Association*, at the Fairmont Hotel in San Francisco. Contact Cliff Johnstone, secretary, 447 Sutter St., San Francisco.

SEPT. 10-12—*Rocky Mountain Industrial Exposition*, Univ. of Denver Arena. Contact Harold S. Craig, exec. secretary Rocky Mt. Management Club, 1031 - 15th St., Denver.

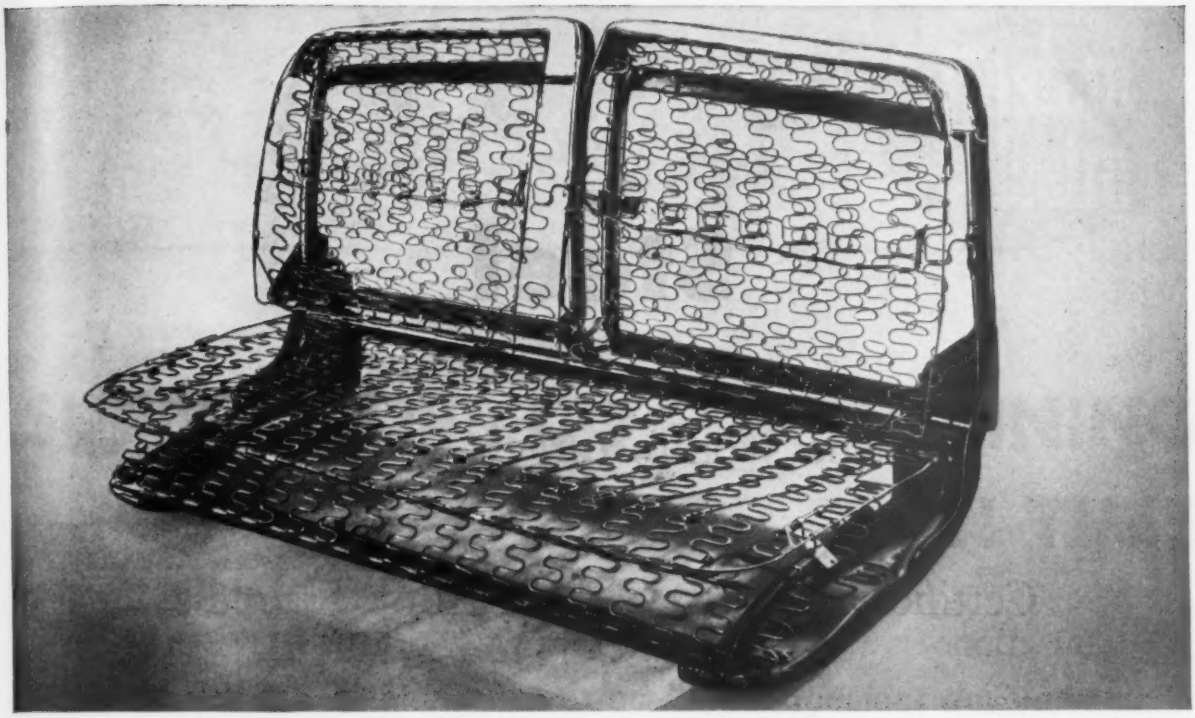
SEPT. 13-16—*American Institute of Chemical Engineers*, national convention at the Fairmont and Mark Hopkins Hotels in San Francisco. Contact George Gester, P. O. Box 1627, Richmond, Calif.

SEPT. 21-23—*American Mining Congress*, Metal and Nonmetallic Mineral Mining Convention, Olympic Hotel, Seattle. For hotel reservations contact Housing Committee, Seattle Hotel Association, 315 Seneca St., Seattle.

OCT. 16-17—*Automotive Electric Association*, national conference, San Francisco. Contact S. W. Potter, exec. secy., 802 Michigan Bldg., Detroit 26, Mich.

OCT. 18-20—*Pacific Northwest Trade Assn.* Fall conference on water resource development, Hotel Davenport, Spokane. Contact D. C. Knapp, executive secretary, 1217 Joseph Vance Bldg., Seattle.

OCT. 20-22—*Pacific Coast Management Conference*, at the Claremont Hotel, Berkeley, Calif. For further information contact California Personnel Management Assn., 2180 Milvia St., Berkeley 4.

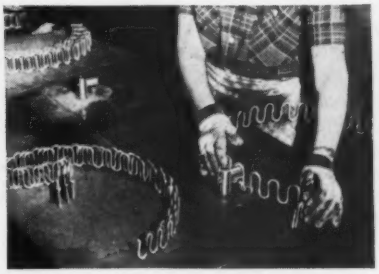


Over 300 tons of U·S·S Manufacturers Wire are needed every month to produce car seat assemblies like this at the Standard Steel Spring Co. in Los Angeles. Each unit contains about 20 pounds of this uniformly high quality wire from Columbia-Geneva.

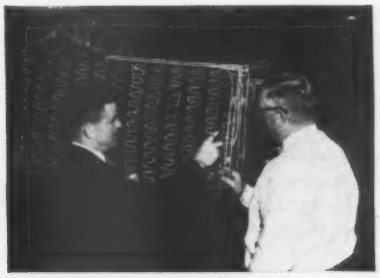
Here's how Standard Steel Spring Co. makes a car seat



This zig-zag wire former turns out 169 feet of convoluted wire per minute. Besides the 9-gauge wire used here, there are more than 1000 other types, grades, and finishes of U·S·S Manufacturers Wire available. Columbia-Geneva also can produce tailor-made wire to meet your own specifications.



Air-operated benders are used to form the convoluted wire for assembly. Making these zig-zag springs is just one of the many uses for U·S·S Manufacturers Wire. Columbia-Geneva, with the greatest wire-making facilities in the West, also produces wire for everything from bolts to bed springs.



Harold Sloan, right, General Manager of the Los Angeles Division of the Standard Steel Spring Co., here examines a finished unit with a Columbia-Geneva specialist. Mr. Sloan says, "We like U·S·S Manufacturers Wire. It meets the high standards required in the auto industry. And it's always of uniform, high quality."

For any type of wire you need, rely on U·S·S Manufacturers Wire. It's production is rigidly controlled by United States Steel from raw ore to the finished product. Columbia-Geneva specialists are always available to help you select the wire that's right for your job. For information write to Columbia-Geneva Steel Division, United States Steel Corporation, 1403 Russ Building, San Francisco 6.

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Western Industry

JULY 1953

SUPERVISORS GO FOR TRAINING ON THEIR OWN TIME

Proof that they are personally interested in management development

AS THE FATE of any business rests with its supervisors, the accompanying experiences of Ryan Aeronautical and the Mountain States Employers Council are of particular interest.

Ryan's program, applicable to almost any Western company, large or small, constantly avoided the words "training," "course," "instructor" and "class." Instead, "management development" was stressed, and the word "conference" applied, to give prestige and overcome any reluctance.

WHEN the education supervisor for the Ryan Aeronautical Company, San Diego, told West Coast training people last year that his company felt its supervision would be willing to participate in a good training program on their own time, he was strongly counseled that it couldn't be done.

Some of the professional trainers flatly predicted failure for any effort which was undertaken outside the regular work hours of the participants. Nevertheless, Ryan managers stuck to their guns, taking this view:

A vote of confidence

"Ryan foremen and supervisors recognize their personal futures are tied up in the success of their company. They will be willing to pitch in after the work day to improve themselves and to learn more about the job we're doing."

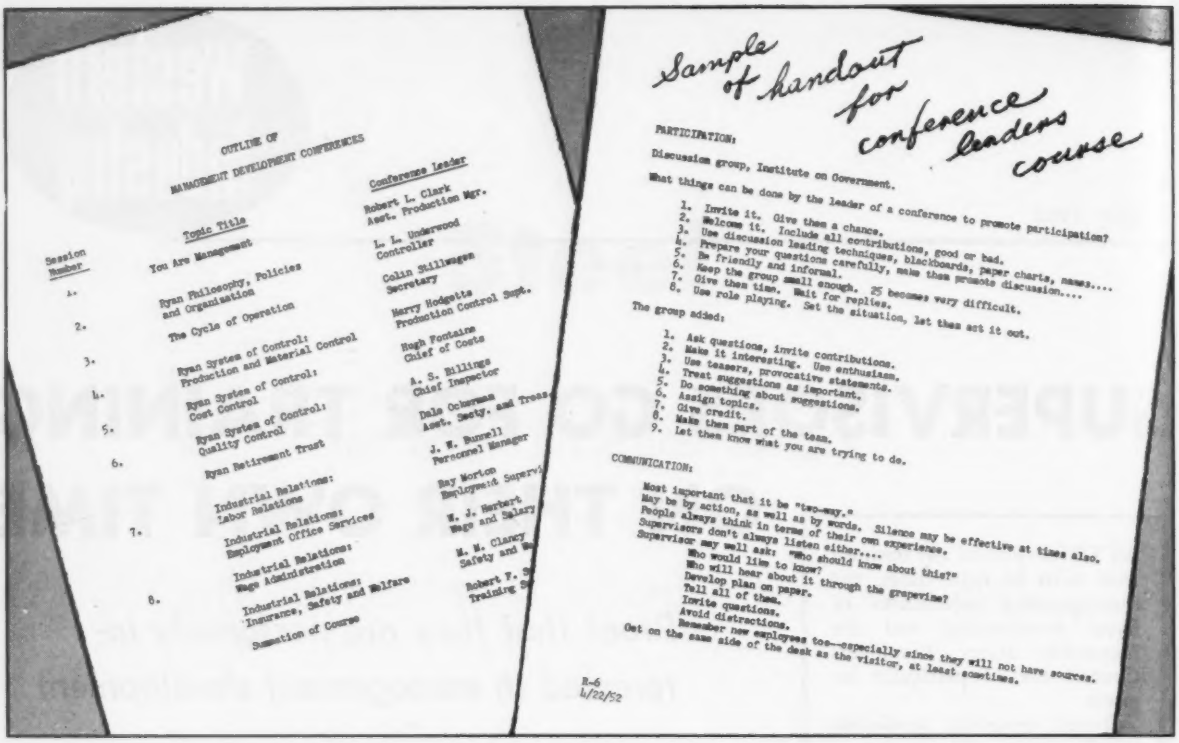
So they went ahead and instituted a continuous program of management conferences, which strives to define various levels of management and effect an understanding of the various company operations. These series are designed to train future management in company policies as well as improve their human relations skills.

It was decided to use company executives rather than training specialists as instructors. Forty top officials were given a 14-hour course in conference leading on their own time. This course was run by Charles W. Patrick and J. Wilson Getsinger, administrators in the San Diego city school system.

Three objectives in the conference leaders' program were: (1) to develop the content of the management development program through the group thinking of the 40 men enrolled in the conference leaders' course, (2) to train at least 15 qualified conference leaders to carry out the sessions of the management development program, and (3) to help all 40 enrollees im-

"YOU ARE management," explains R. L. Clark, Ryan methods engineering manager, as he leads a discussion in the art of handling people at the first of eight meetings.





OUTLINE OF

MANAGEMENT DEVELOPMENT CONFERENCES

Session Number	Topic Title	Conference Leader
1.	You Are Management	Robert L. Clark Asst. Production Mgr.
2.	Ryan Philosophy, Policies and Organization	L. L. Underwood Controller
	The Cycle of Operation	Colin Stillwagen Secretary
3.	Ryan System of Control: Production and Material Control	Harry Hodgetts Production Control Supt.
4.	Ryan System of Control: Cost Control	Hugh Fontaine Chief of Costs
5.	Ryan System of Control: Quality Control	A. S. Billings Chief Inspector
6.	Ryan Retirement Trust	Dale Ochsenaa Asst. Secty. and Treas.
	Industrial Relations: Labor Relations	J. H. Burrell Personnel Manager
7.	Industrial Relations: Employment Office Services	Ray Morton Employment Supervi
	Industrial Relations: Wage Administration	W. J. Herbert Wage and Salary
8.	Industrial Relations: Insurance, Safety and Welfare	M. M. Clancy Safety and W
	Summation of Course	Robert F. S Training Sp

Sample of handout for conference leaders course

PARTICIPATION:

Discussion group, Institute on Government.

What things can be done by the leader of a conference to promote participation?

1. Invite it. Give them a chance.
2. Welcome it. Include all contributions, good or bad.
3. Use discussion leading techniques, blackboards, paper charts, names....
4. Prepare your questions carefully, make them promote discussion....
5. Be friendly and informal.
6. Keep the group small enough. 25 becomes very difficult.
7. Give them time. Wait for replies.
8. Use role playing. Set the situation, let them act it out.

The group added:

1. Ask questions, invite contributions.
2. Make it interesting. Use enthusiasm.
3. Use teasers, provocative statements.
4. Treat suggestions as important.
5. Do something about suggestions.
6. Assign topics.
7. Give credit.
8. Make them part of the team.
9. Let them know what you are trying to do.

COMMUNICATION:

Most important that it be "two-way."
May be by action, as well as by words. Silence may be effective at times also.
People always think in terms of their own experience.
Supervisors don't always listen either....
Supervisor may well ask: "Who should know about this?"
Who would like to know?
Who will hear about it through the grapevine?
Develop plan on paper.
Tell all of them.
Invite questions.
Avoid distractions.
Remember new employees too—especially since they will not have sources.
Get on the same side of the desk as the visitor, at least sometimes.

R-6
1/22/52

prove all conferences for which they are responsible.

From this conference leading course came a trained faculty and a basic outline for a series of eight management development conferences to be started immediately for all 400 supervisors, assistant foremen through division managers.

With 25 men per group, this program schedules four groups to meet each week to discuss subjects such as labor relations, and the company's cycle of operations. Leader of the latter conference is C. A. Stillwagen, secretary and treasurer of Ryan. Similarly, the production control superintendent leads a session, as do the methods engineering manager, chief of costs, personnel manager, wage and salary administrator, safety engineer, employment supervisor, controller, chief inspector and retirement plan administrator.

PRE-SESSION huddle. A. S. Billings (left), quality control chief; D. G. McLees (standing) and R. F. Smith, training specialists.



Methods used

An extensive use is made of visual aids, quizzes, and sensitizing panels in order to provoke discussion. Leaders who are unfamiliar with any other approach than the lecture platform have come to recognize how much development of group participation promotes learning and attitude formation.

Some of the more specific objectives of the management development conference are: (1) to effect an understanding of the areas of authority and corresponding responsibility of the various levels of management, line and staff, (2) to effect an understanding of the various company operations and explain the part each participant's job plays in the total operation, (3) to furnish information on how each man can improve his human relations skills, (4) to inform participants of company policies.

Advantages and disadvantages of the conference method of training are discussed as well as different types of conferences and possible direction of these conferences.

Buzz sessions, intended to stimulate imagination and lead to better plans, are being tried in the conferences. The speaker makes a presentation, suggests a plan and forms buzz groups. These groups discuss the plan, considering whether or not it is applicable to their problems, and if so, how to make use of it.

Another device used is listening teams. Before giving a presentation, the leader divides his audience into small groups and assigns each group a question. A group reporter, appointed by the leader, reports findings of his group at the conclusion of the presentation.

Play-back

Tape recorders are used to play back a speaker's interviews with two or three representative persons from the group.

Certain people in the groups are asked to interview others in their own departments to obtain reactions on a specific matter. Results are then reported at the meeting. In the sensitizing panel, a selected small group is assigned the task of interrupting the speaker whenever it thinks he has failed to make a point clear or has not told the full story.

Over an 8-month period the program reaches all supervisory and staff

personnel. A special company education committee is studying the results from an evaluation questionnaire returned by the 200 conferees having already completed the course. From their findings the committee is constructing the outline of follow-up conferences designed to meet the desires of the supervisors themselves.

Rating requested

This post-series reaction sheet asks the conferee to rate in order of interest (1) whether he would like to know more about the topic, and (2) rating the topics most interesting to himself. A space is left for comments at the end of this question. Second, he is asked if there were any topics not covered in the series which should be included in future conferences. For example, motion and time study; how to rate employees; how to instruct employees on the job; case studies and human relations; how to handle employee grievances; statistical quality control; change control system; metallurgy, and material conservation.

Next he is asked if he would like to attend sessions in such fields as report writing and public speaking. Question four asks if he believes an occasional movie is of value. Question five, what features did he particularly like about these conferences? Question six is a choice of times for holding the conference. Question seven asks for additional comments, questions or suggestions.

As a result of the forthright, democratic air prevailing over the first series, conferees were extremely objective on the questionnaires. They indicated how they would like meetings conducted, what subjects they want to know about, which ones they think will prove a waste of time to cover. The consensus of opinion was that visual presentations and the chance to talk freely were particularly desirable. Conferees didn't like speeches, and wanted to know more about the specific operations of the company.

Conference leaders were given an opportunity at the end of the series to rate themselves on the accomplishments of their individual conferences.

Positive response

Conference leaders and conferees alike are very enthusiastic over results of this first series of conferences. Leaders, each one of whom conducts four 2-hour sessions every eight weeks, particularly appreciated the chance that sessions gave them to meet supervision on every level. They made real discoveries as to what goes on in the minds of their own management team.

Conferees enjoyed getting better acquainted with executives informally, preferring to be led by men on the job rather than people unfamiliar with their daily problems. High voluntary attendance at meetings on their own time bears witness to the benefits from this highly successful conference series.

WORKSHOP ANALYSIS OF FOREMEN'S STATUS

By NORMAN K. KELLY
Research Director
Mountain States Employers Council
Denver, Colo.

"THE STATUS of the First Line Supervisor" was the subject of one of a series of Management Workshops held recently by the Mountain States Employers Council, and representatives of 21 companies participated, mostly from top management, although some foremen were present. Those registering for the meeting were furnished a meeting outline and asked to come prepared to discuss the practices of their companies on foreman compensation, status and development.

Those participating represented companies with employment from 25,000 to 60. They came from such varied industries as a public utility, several metal-working plants, a smelter, two brick and clay plants, a meat-packing house, a lumber mill-and-fabricator, an apparel manufacturer, several wholesale houses, and others. Some were from unionized plants, some from non-union organizations.

Job description

FOREMAN—Supervises a group of workmen engaged in a trade or handicraft. Interprets blue prints, sketches, and written or verbal orders. Determines procedure of work. Assigns duties to subordinates and inspects their work for quality and quantity. Maintains harmony among workers. May keep time, production and other clerical records; employ, train, and discharge workers; assist subordinates during emergencies; and perform related duties of a supervisory or administrative nature.

The participants were seated facing each other in a hollow square. Four members of a panel which had met before the Workshop to prepare material on the topic were spotted at random in the group. Members of the Employers Council staff sat together near a blackboard and other visual aid equipment useful in guiding and summarizing the discussion.

Discussion was strictly informal. The panel members described their policies and evaluated their merits. Other participants chimed in and a considerable amount of information was elicited on what is often a very restricted subject: how well do you take care of your foremen?

Most of the companies had their foremen participating in hiring, firing and handling discipline and grievances. Few of them delegated *full* authority on these matters.

The companies agreed that foremen should be kept up to date on changes in company policy—about half of them normally held meetings of their foremen for this purpose.

By presenting information on financial matters, sales, price of products, prospects of new products, etc., foremen were made to feel that they were a part of the "management team."

Most union-organized companies held regular informal meetings with their foremen to discuss union contract changes.

Twice as many companies compensated their foremen on a salary basis as those that paid by the hour. The percentage of differential maintained between foremen and the highest paid employees under them varied widely, depending upon length of service, type of work, skill involved, etc., but the majority paid a differential from 10% to 30%.

Foremen fared somewhat better than the rank and file in the matter of fringe benefits. Extra benefits granted to them included: sick leave (most prevalent), insurance, preference in vacation selection, days-off for personal reasons, and profit-sharing bonuses.

For the outline sent to the companies in advance, see page 64.

KEEP TRACK OF WHAT HAPPENS

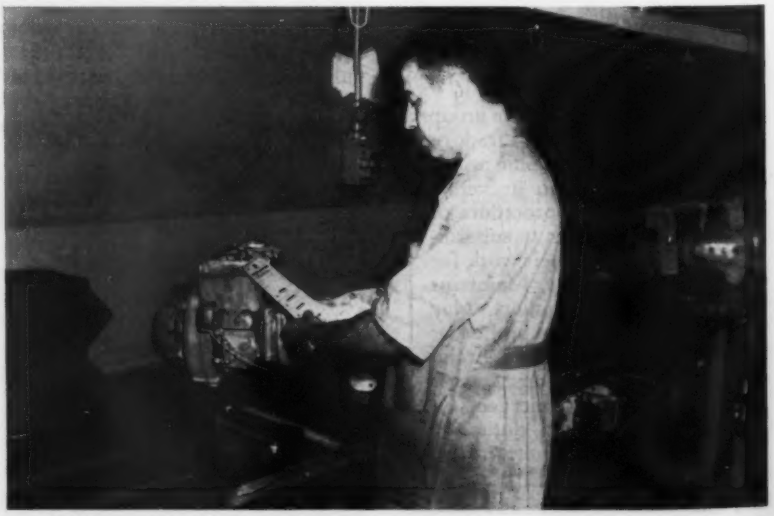
Tag it, so everyone knows what the score is



All pictures courtesy of Eastman Tag & Label Co.

1 At the beginning of the first assembly on the production line, one of the tags is attached to each unit. These tags come in three different colors designating the different horsepower ratings of the motors. After this basic assembly of motors, the bottom section of each tag is torn off, signifying that everything is satisfactory, and the motors ride a constantly moving conveyor belt into the testing room.

2 In the test room, engines are run in order to spot any defects. All engines proceed to a final assembly line for the finishing touches. If at any time the engineers wish to change slightly the construction of a particular model going through the line, an engineering change tag is attached to the first unit to be so altered. Consequently, each unit thereafter is changed in the same manner, and this change becomes incorporated into the regular production system.



PRODUCTION control tags, used in the assembly line at McCulloch Motors Corp., Los Angeles, reduce the margin of rejects and complaints due to faulty materials, and facilitate inspection, storing and shipping of chain saws, chain grinders, earth drills, augers and portable fire pumps. McCulloch is the world's largest builder of power chain saws.

3 After testing, units receive a primer coat of paint, are dried and given a final coat of paint, all within a few minutes. The balance of the unit is then assembled, and handle bars and chrome parts are attached. The final line section of the tag is torn off and the saw moves on to the final inspection room.





5 Engines are run in a final testing room where a very thorough check is made on each unit. If defects are found at any time during assembly and inspection, an engine rework tag is attached to the faulty part, stating the reason for rejection. The unit is then returned to the rework department for correction. After careful retesting, rejected assembly is returned to the production line. Inspection section of the tag is then torn off and a conveyor moves each unit to the shipping department.

4 From final inspection, units are boxed, with the top of the tag remaining on the piece of equipment until it reaches the customer. Boxes are moved to the warehouse, where one section of the tag is removed. If boxes are to be shipped immediately, the warehouse is by-passed and the top two sections are removed in the shipping department. If units are not to be shipped immediately, they go to storage on roller conveyors.





6 In the shipping department tags are used to gather production data on daily, weekly and monthly shipments. Tag numbers correspond to numbers written on the box. If user finds any defect, he can refer to the tag number, engine serial number, and inspector when registering a complaint. McCulloch Motors can then trace immediately the department or inspector at fault.

FLEXIMATION—What is it?

IT'S "AUTOMATION" FOR THE LITTLE GUY.

•

Here's a case example of applying the idea—

•



By
HUGH R. MORRIS
Assistant Project Manager
Magna Drill
Magna Engineering Corp.

"AUTOMATION" is rapidly taking on the character of a milestone word in today's industrial vocabulary.

To some it represents the key to a future filled with automatic factories and mass consumer items brought within the reach of all.

To others it is the opening of Pandora's box and a future filled with technological unemployment and small machine shops whose closed doors testify to a competitionless, automated age.

Professor Frank Shallenberger pointed out in his article on automation in *Western Industry's* March issue, that there was more to the concept than servomechanisms, closed and open loop control systems, and other electronic devices that characterize large-scale planning for automation in the major industries. We do not mean to slight significant advances in the field of electronics for control of machine tool and assembly line operations, but we do feel there is a large area for automation of the mechanical type in metal working shops of modest size and capacity.

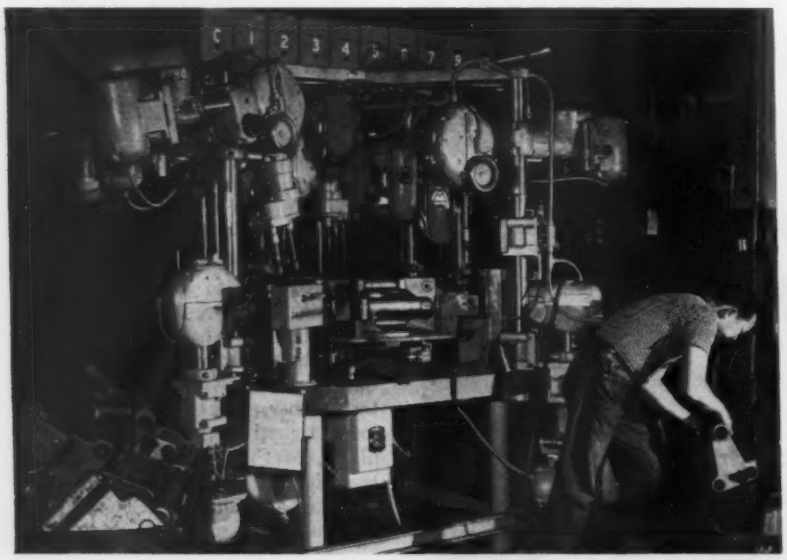
Flexibility vital

When you consider that three-fourths of the nation's metal working falls into the average lot group of 15 to 50 pieces per lot, the need for flexible machines must take precedence over the automatic machine. Ideally, we must create machines with both characteristics. If we assume that this is light industry's objective in the field of automating industrial processes, we are forced to think in terms of "flexi-mation" rather than automation.

Typical problem

As to a specific industrial problem, let us take the drill press, as common in both the large and small shop. With the exception of the elaborate and expensive unit type heads or the specially designed transfer-type drilling machine, little thinking has been done toward the improvement of the drill press. A long production run was needed to justify the expense of the special purpose drilling machine, otherwise the standard drill press and available accessories would have to suffice.

But what about the shop that was bidding on a job involving multiple plane drilling on a run of a thousand pieces? A specially designed machine



THE NEW WAY

THIS thirteen-head Magna drill set-up is a single automatic, flexible piece of equipment. It replaces slow and costly methods requiring many men and machines.

was out of the question, so the unit cost was controlled by the time necessary to drill the holes one at a time. For this middle ground of drilling operations no solution had been developed until the arrival of the Magna drill.

Problem solved

Magna Engineering's solution to the problem began by a re-design of the drill press into a group of components rather than a single drill press unit. Thus with head assemblies, columns, bases, tables, and legs, the basic tools for flexibility in drilling were at hand. This departure from the conventional concept of the drill press permitted a major improvement in thinking in terms of drill press tooling. For a fraction of former tooling costs drill heads could be arranged in relation to the part to be drilled for short, medium or long runs. The head assembly has three planes of movement, plus the ability to be mounted in any one of ten positions on the table. Any one or combination of drills can then enter the workpiece from any angle.

With multi-head, multi-plane drilling available, a method for the simultaneous use of the heads was mandatory. A self-contained power feed that could be quickly mounted and removed from the head assembly and actuated either manually or electrically was designed to achieve this objective.

Ideally—

In an ideal application, the Magna drill could be mounted with a number of heads, each approaching the workpiece from a different angle. All holes could be drilled simultaneously, the only manual operations involved, outside of maintenance, being loading and unloading and actuating the power feeds with a push-button. By setting the power feeds for cyclical operation, adding hopper feed and an unloading finger, each actuated by microswitches or cams, the manual operation is reduced to maintenance alone.

Looking back at our figures for the average lot run of 15 to 50 pieces, the necessity of flexibility in use is given considerable impact. Through a system of clamping joints the heads may be repositioned in a few hours' time. By the removal of four bolts, the head, column and base can be completely relocated or removed.

Setup time and retooling then become roughly equivalent to the time necessary to punch a new master tape or make the control film that bosses the electronically guided machine tool. The difference lies in the internal re-arrangement of the Magna drill rather than the external re-arrangement of the controls of another type machine.

Automation on the modest shop level will be the critical area in which production performance must improve to compete with large-scale automation in the heavy industries. Tool engineers must think in terms of making automatic those operations that are paced by the speed of the operator. This does not mean duplication of the hand motion of workers at a faster rate, but a re-examination of the whole process involved in producing a single part. By dividing the total process into unit operations and then combining these, the operations best suited for automating can be chosen.

Re-design unnecessary

Another approach to the problem is through product re-design in order to render it more adaptable to automatic production. Magna drill's flexibility all but removes the necessity of this approach, as the machine can be "molded" around the part. Former limitations on automatic drilling were either lack of flexible equipment or lack of money to buy specialized equipment. These limitations have been removed, with only the imagination of the tool designer needed to complete the process.

An illustration of the combination of drill components and imagination is seen in the creation of a 13-head machine at Production Engineering Corporation, Berkeley, California. In one heavy casting 16 operations were performed; 10 drilling, two reaming and four tapping. Operations were previously done on six different machines, necessitating the castings being moved or handled 15 times. By this old method, less than eight parts were produced per man-hour, and the whole operation often became a bottleneck when production quotas were increased.

Using standard Magna drill components, with the exception of tables and legs which were specially constructed, an installation was built consisting of 13 heads mounted with lead screw tappers and power feeds. The operation is centered around a six-station, air-operated, rotary index table. Part

Cost comparison

COMPARE the cost and savings effected by the installation of flexible equipment. Here are two good examples . . .

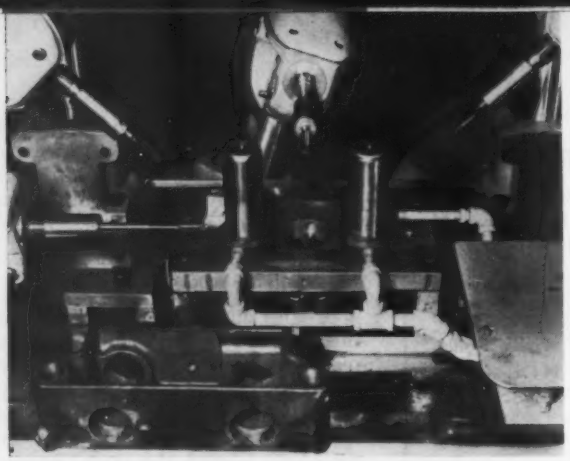
	Old Method	New Method (Magna Drill)
Cost of equipment	$4,638	$10,030
Tooling cost	$1,519	$2,120
Parts per man-hour	7.6	30.0
Savings per part	.....	$0.45
Savings per year at present production rate	.....	$15,599

	Old Method	New Method (Magna Drill)
Cost of equipment	$875	$3,545
Tooling cost	$275	$135
Parts per man-hour	30.0	130
Savings per part	.....	$0.11
Savings per year at present production rate	.....	$3,976



THE OLD WAY

PART of the equipment that was used to drill and tap a casting before flexible equipment came to the rescue, doing the load and unload at the push of a button.



DETAIL is shown of a Lead Screw Tapper set-up showing mounting pins and tap coming up through the table.

handling has been cut to merely load and unload. Outside of maintenance, the only other manual step is the pressing of the push-button which actuates both the index table and all the heads simultaneously.

A series of microswitches work to prevent the index table from rotating while any head is operating, functioning as an electrical interlock. Other switches actuate an air cylinder which raises and lowers one head mounted between two columns to supply sufficient clearance and travel for the reaming operation. Operated by one man, this drill application has upped production to 30 castings per man-hour, an increase of almost 400%.

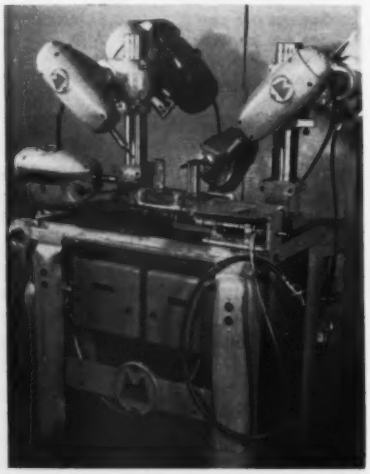
Paid off in 22 weeks

Although the normal production quota is filled in 28 weeks, the machine paid for itself in 22 weeks or after slightly more than 27,000 parts had been produced. Assuming a full year's production, the total savings would amount to $27,970.80, a fairly substantial sum, when related to the investment required. Here is automation translated into the realistic terms of quick amortization, bread and butter words in the small shop.

Since the "fleximation" thesis places equal emphasis on the flexibility of an automatic machine, there are two further virtues in this setup. Assuming a design change calling for the relocation of one or more holes, Magna drill's adjustable throat and head angularity permits minimum down time for repositioning the heads. If the design change is so radical as to render the machine useless as it stands, approximately 83% of the machine is salvageable.

It is hard to estimate what percentage of drilled holes are subsequently tapped, but it is of such considerable portion that this operation, too, must be subjected to the considerations of automation. As with multiple drilling operations in short or medium production runs, there is a middle ground barren of adequate machine tools between the friction tapper and expensive, specially designed tappers.

The lead screw tapper has become a necessity and an integral part of the drill's flexibility. The lead screw and nut were designed to slip easily into the head assembly, completely replacing the quill. A switch plate for controlling tapping stroke and a reversible starter for both drilling and tapping complete the unit. Thus, combined with all other features, the potentialities for flexible, automatic tapping are as wide as they are with drilling.



A BUTTON actuates the tapping cycle of a 5-head Magna drill Lead Screw Tapper

As any number of reversing starters may be wired for simultaneous or sequential operation, any combination of tapping heads can be controlled from a single switch. Here again we see manual operations reduced to the load, unload and button-pushing level.

Production Engineering Corporation has purchased another setup that clearly illustrates its potentialities as a tapper. Currently in production is a casting which calls for five tapped holes, no two in the same plane. In order to complete the operation, the casting was previously handled seven different times on two machines.

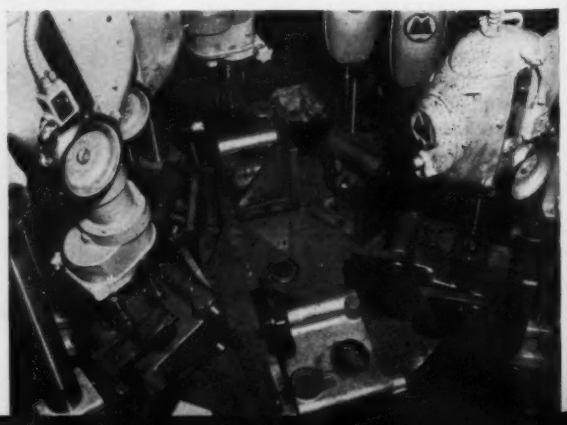
The five-spindle Magna drill setup included a unique arrangement calling for one head tapping directly up through the table. With production increase of over 400%, the year's production quota is completed within seven weeks. The machine was paid for in a little more than six weeks time. If production were run on a full year's basis, total savings would amount to $29,536. Again we see amazingly rapid amortization for a machine that is virtually automatic with salvageability even further increasing its value.

Needs evident

The specific needs for various types of flexible, automatic equipment are self-evident. These needs are probably not as pressing today as they will be tomorrow, nor is Magna drill necessarily the panacea for all drilling and tapping problems. But it is illustrative of the type of machine needed; flexible to the point of being quickly recreated at the completion of a production run into a needed automatic unit elsewhere in the shop.

There are a number of machines with the flexibility to adapt to the coming age of automation.

It is significant that designers of machine tools have recognized the need for stepping up the production potential of the small and medium sized shops. As free enterprise is predicated on relatively unrestricted competition, the system can be maintained only if the competitors are properly equipped for the contest.



DETAIL of operations performed on surface of an indexing table. Heads are all mounted with power feeds or Lead Screw Tappers.

Special section on . . .

. . . APPRENTICESHIP

How can the employer find the skilled workers to fill the gaps in his labor force? The problem is particularly acute today in the West, where mass production with mainly unskilled workers is less prevalent than it is in the East.

The West has taken a leading part in attacking it, and the following articles on apprenticeship training are particularly timely, in view of the First North American Conference on Apprenticeship at San Diego, August 2 to 9.



OPPORTUNITIES—

Under the State of California apprenticeship programs



LABOR and management working together toward skilled workmanship and production is the aim of apprenticeship programs.



By
ARCHIE J. MOONEY
Chief
Division of Apprenticeship Standards
California Department of Industrial Relations

FORWARD - LOOKING management knows from experience that the future of our industries depends upon an adequate supply of all-round skilled workers, not only to keep up present production, but to serve as a reservoir from which future foremen, superintendents and other top functionaries may be drawn.

The modern apprenticeship training program is a cooperative effort by management, labor and government—the latter including the public schools and state and federal apprenticeship agencies.

Providing service and coordination to industry—management and labor—and doing as much of the "leg work" as possible for volunteer joint apprenticeship committees throughout the state is the role of the state apprenticeship agency in California, as in other states.

Means to the end

To that end, the Division of Apprenticeship Standards has established area, district and local offices in every part of the state. Approximately 50 field representatives maintain contact with management associations and individual employers, labor organizations, public school authorities, employment service offices and others, and perform a multitude of duties designed to strengthen and enlarge the present training program.

Through the Division of Apprenticeship Standards and the California Apprenticeship Council appointed by the governor, the state government plays an important role in sparking the program. It brings management and labor together to form local and state joint apprenticeship committees, contacts employers to promote their interest in on-the-job training, assists in the actual development of apprenticeship standards for a multitude of trades and industries, and (in its function as approval agency under federal veterans legislation such as the G.I. Bill and the Korea Veterans Bill, Public Laws 346 and 550) inspects and approves eligible business establishments to give on-the-job training to veterans who qualify for federal training allowances and other benefits.

However, the policy of the state agency in California is, and has always been, to delegate control of the local apprenticeship program to the management-labor joint apprenticeship committee authorized by the parent employer and employee organizations to supervise training of apprentices in a given trade and area.

The voluntary features of the California apprenticeship law (Shelley-Maloney Apprentice Labor Standards Act of 1939) and the above-stated policy of local control have resulted in widespread acceptance of the program by employers and employees and the public in every part of the state.

Wholehearted cooperation by local groups has resulted in a furthering of sound labor relations, a more than casual by-product of the program. Over 4,000 members of some 550 local and state joint apprenticeship committees give generously of their time and their services.

Duties of committees

At regular meetings these committees interview and evaluate apprentice applicants, check on the progress (both on the job and in school) of registered apprentices, pass on the qualifications of those who have completed training and recommend them for state trade certificates, which are issued by the California Apprenticeship Council.

Since the inception of California's present apprenticeship program, more than 30,000 apprentices have completed training and have been certified as qualified skilled journeymen. About 19,000 apprentices are currently in training, in over 300 different trades. Upwards of 25,000 employers are approved to train apprentices, and many more are eligible; a constant selling job is being done, both by field representatives of the state and federal agencies and by the local joint committees, to interest more employers in accepting their training responsibilities.

A good deal of public relations work is carried on to point up the value of apprenticeship to industry, the community and the nation. Not only is it sometimes necessary to convince an employer who is qualified to train skilled workers that it is to his best interests to do so, but it is also necessary to carry on missionary work with young people to encourage them to

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Area Offices (with district offices below each):

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SAN JOSE
Oakland—San Jose

SACRAMENTO
Redding—Sacramento—Stockton—Fresno

LOS ANGELES
Los Angeles—Long Beach

LOS ANGELES
Bakersfield—Santa Barbara—Santa Ana—San Bernardino—San Diego

enter the skilled trades. Work is carried on with parent-teacher groups, civic organizations, school counselors, employment interviewers and others by apprenticeship field representatives, to bring to them the story of apprenticeship and the advantages it holds for competent, ambitious youths to find their places in America's growing economy.

Opportunities are unlimited for those out-of-school young people who desire to "earn while they learn" through on-the-job training as apprentices. Everyone is familiar with apprenticeable opportunities such as those in the building and construction industry (carpenters, electricians, painters, lathers, plasterers, brick and tile masons, plumbers, and sheet metal workers, to name a few); those in the printing and lithograph industries (such as compositors, pressmen, photoengravers, bookbinders, lithographers); those in the automotive industry (including auto mechanics, body and fender men, diesel engine mechanics); those in aircraft (aircraft engine mechanics, jig and fixture builders, as well as machinists, tool and die makers, pattern makers, electricians and other classifications also found in the machine and metal working industries); those in what are commonly called service industries (such as meat cutters, cleaners and dyers, bakers, cooks, tailors, shoe repairmen, furriers and the like) and many others long associated with craft training.

Long-range training

But a number of additional occupations also require long-range organized training, although opportunities are more limited, and many times an employer will be able to train only one apprentice every several years. Yet it is the small employer who is most dependent upon highly skilled journeymen, for his operations cannot be on a mass production basis.

And so it is that young persons looking for their first jobs on graduation from high school, or upon return from military service, often seek out and find employers who are willing to train them as apprentices, in a variety of occupations.

Some of the more uncommon trades include instrument makers, dental and optical technicians, draftsmen of all kinds, artificial limb and brace makers, commercial photographers, commercial artists, camera repairmen, sign painters, gunsmiths, jewelry workers and watch repairmen, landscape gardeners and nurserymen, leather workers, locksmiths, model makers, organ and piano repairmen and tuners and pottery workers.



IN LEATHER working as in many other trades, training under an apprenticeship program benefits all concerned.

OPPORTUNITIES—

Under the Federal apprenticeship programs

THE National Apprenticeship System made possible by the Fitzgerald Act gives the Secretary of Labor power to work out labor standards which safeguard the welfare of apprentices.

The Bureau of Apprenticeship was set up with a committee made up of representatives of management, labor and interested government agencies, known as the Federal Committee on Apprenticeship. This committee coordinates the apprentices' training and is aimed at helping national and local training systems.

The Bureau's basic policy is to foster training plans that will be jointly established and mutually agreeable to both employers and employees. Responsibility for working out details is left up to the employers and employees in each trade.

Apprentice groups

The total number of apprentices registered with the Federal Bureau of Apprenticeship on June 30, 1952, is 158,252, broken down into three major groups:

Construction Trades—80,090	
Electrical Trades	15,661
Painting Trades	3,898
Pipe Trades	18,833
Trowel Trades	13,435
Wood Working Trades	24,608
Other Trades	3,655
Mechanic and Repair Trades—50,788	
Automotive Trades	13,747
Printing Trades	12,893
Other Trades	24,148
Metal Working Trades—27,374	
Machinist Trades	16,293
Sheet Metal Trades	7,788
Other Trades	3,293

By
BRONCEL R. MATHIS
Regional Director
XII Region
Bureau of Apprenticeship
U. S. Department of Labor



Joint management-labor committees formed by national employer associations and trade unions must develop national standards and encourage the local management and labor affiliates to set up systems of their own conforming to these national standards. National committees advise the Bureau on special problems in their respective industries.

State agencies were formed with an equal number of employers and employees, and in some cases one person each from the State Board for Vocational Education and the State Depart of Labor. These agencies have patterned their standards after the Federal Apprenticeship Committee.

Defense manpower

The Bureau's activities are also directed at relieving the manpower shortage for defense production. Skill improvement is designed to encourage and assist employers and labor in planning their on-the-job training system. The objective of this system is to develop new and broader skills and technical knowledge of workers on all levels of all occupations. Industry is assisted by the Bureau of Apprenticeship representatives located in industrial areas all over the U. S. The Bureau works with state agencies, the

Division of Trade and Industrial Education, the U. S. Office of Education, state boards for vocational education, local schools and colleges. The Bureau also operates with the Bureau of Employment Security and other groups in selecting and developing the worker's skills.

The apprenticeship system is the dominating factor in all plants requiring the services of all-round craftsmen. Upon these men rests the responsibility for tooling up the processes of production and maintenance of equipment and the establishment of continuous and desirable production schedules. The system is the hub from which production flows. It is also the center of knowledge from which the less skilled workmen increase their knowledge of the arts and sciences of the trades in their plant.

An important aim

One of the major objectives in the defense production effort is to build up skilled manpower in critical trades. The Bureau's field staff assists and encourages the defense industries to further apprentice training in all trades.

The skilled worker is the "keystone of American industry." By learning through apprenticeship the productive capacity and initiative of our American industry is insured. The Federal Apprenticeship Training Program offers management, labor and the "craftsmen of tomorrow" the opportunity to invest in such insurance.

APPRENTICESHIP



BAKERS apprentices learn fine points of baking and decorating under the watchful eyes of experienced men in that industry.

RELATED TRAINING— For tomorrow's journeymen



By
DR. O. D. ADAMS
Assistant Superintendent of Schools
San Francisco Board of Education

THE need for the development of skill in occupations is obvious, but the need for related instruction in technical matters is not quite so apparent, except to those persons directly concerned.

Since World War II there have come into the industrial field many new forms of science in which a knowledge of theory and technical information is absolutely necessary.

Basic know-how

Our present-day technology has a high content of mathematics, physics, and chemistry. An apprentice in any area where these subjects are essential will find himself at a loss unless he has some basic grounding in the elementary sciences involved. The invention of the electron tube and the recent advance in commercial transformation and utilization of atomic theory indicate the necessity for related information in training future journeymen.

A shipfitter or a carpenter on the job, without knowledge of blueprint reading, is severely handicapped and may be assigned only those jobs that are strictly of a semi-skilled nature. He does not have the ability to compete with the better-trained journeymen over a long period of time unless he has learned to use this basic knowledge in conjunction with part of his work.

The "old timers" were excellent craftsmen, even though they did not have an opportunity to attend school. Their skill has left its mark in invention, construction, and manufacturing. While they may not have had schooling, they had knowledge of the "how" and "why" of their trade, and in some instances were fully taught by the journeyman on the job.

Under present production practices this way of learning has almost entirely disappeared. The important point, however, is to realize that whenever progress has developed from trade ability, it has been the result of a combination of knowledge and skill. Today's plan provides that it can be best learned in related classes in school.

School-time paid for

Many employers pay their apprentices to attend school in the day time. This is the case in San Francisco with electricians, painters and decorators, automotive mechanics, body and fender mechanics, and the machinists. It seems to indicate that both management and labor recognize that this related instruction is a very essential part of the present-day training for apprentices. In fact, this need for related instruction has been important enough to bring about construction of the John A. O'Connell Vocational and Technical Institute of San Francisco.

This school provides for training in all standard trades found in the area. Some apprentice classes, such as those in tile setting, plastering and bricklaying, obtain a limited amount of practical school work. Other trades are confined to related technical instruction or a combination of manipulative, related and laboratory type of instruction.

Look at all angles

In making provisions for a school for vocational training all phases of the problem needed are to be considered. Shops and classrooms properly designed and arranged for convenience and utility are necessary. Both manipulative and related classes should be provided for, since changing conditions require flexibility in the course of study.

Some of the special features of the John A. O'Connell building are a large open foyer, attractively designed, convenient lavatories for both men and women, administrative offices removed from the route of student travel, special rooms for making blueprints and for developing films, teachers' lounge rooms, display windows and cases, tool rooms, a library, a cafeteria, and

a special room for projecting films.

The building covers the larger portion of a city block, consists of five floors and contains 200,000 square feet of floor space. The accompanying floor plan of the institute will provide the reader with a better understanding of the part which the S. F. school system is prepared to play in replacing the skills which are urgently needed in this rapidly growing industrial area.

The building was planned with the assistance of 50 advisory, labor and management groups, so in reality it is a school for industry. It is furnished with types of equipment used in industry so it will be as useful as possible in the training of mechanics.

The electrical power and lighting is well distributed and in certain special shops is transmitted by overhead power bus ways which permit considerable flexibility, where power requirements are abnormal.

Storage facilities have been conveniently located and there are separate rooms for aircraft doping, painting, varnishing, sand blasting, and spray painting. All facilities meet local fire and health regulations.

Modern facilities

A cyclone dust and shaving collector serves the mill and cabinet shop. A special heat treatment room is provided for the tool and die shop. Overhead rails have been installed for moving heavy equipment, and a sprinkler system was installed.

Safety features protect the student in every way possible, and not the least attractive devices are three passenger and two freight elevators for moving traffic quickly from one floor to the other. A conference room provides a convenient location for Advisory Committee meetings, and a large yard adjacent to the building is set aside for parking automobiles.

The San Francisco apprentice program brings together labor, management and the public schools for the training of young men in skilled trades. The Board of Education has provided one of the most modern and up-to-date plants for conducting the training, bringing about an effective type of program for young men and women who desire to learn a trade under the guidance of community agencies.

PROGRAM OBJECTIVES

To help management and labor organizations, individual employers and young people by fostering and promoting sound training programs wherever they may be needed is the objective of any apprenticeship program.



APPRENTICE plasterers do smooth work under instructor's supervision

FOURTEEN YEARS OF EXPERIENCE IN CALIFORNIA

By
W. P. KELLY
Coordinator of Apprenticeship Training
Bay Counties District Council of Carpenters



MANY people may not be aware of the fact that, less than 14 years ago, California's laws still provided for a "master and apprentice" system whereby the apprentice was "bound" by his parent or guardian to a master.

If the apprentice was an orphan, poor or homeless, he could be so bound by the superior court. At the expiration of the apprentice's term of service, the master gave him $50 cash and two new suits of clothes worth at least $60!

Legislation

In 1939 California awoke to the fact that its apprenticeship laws were still of the middle ages, while the state had progressed to an industrial, modern political entity. The legislature passed the Shelley-Maloney Apprentice Labor Standards Act, with the full backing of organized employers and employees.

Under that Act, an Apprenticeship Council is appointed by the Governor, composed of four representatives each from management and labor and one from the public, with the Director of Industrial Relations and the Chief of the Bureau of Trade and Industrial Education as ex-officio members. The Council establishes the policies under which apprentices may be trained, subject to the provisions of the law. Administration comes from the Division of Apprenticeship Standards in the Department of Industrial Relations.

This Council meets quarterly, scheduling its meetings for different parts of the state, so that local representatives of management, labor, joint apprenticeship committees, schools, and others interested in the program may discuss with the Council their problems and report on the progress of their training programs. Members of the State Council are also active on local joint committees, so their discussions are down-to-earth, and poli-

cies and procedures established are based on accurate knowledge of the factors involved in sound training programs.

The term of office for Council members appointed by the Governor is two years. Officers are elected each year, with the chairman from labor and the vice-chairman from management, or vice versa. This writer has just completed two terms as chairman, the new chairman being R. A. Smith of P. J. Walker Company, Los Angeles, and past president of the Associated General Contractors of America, Southern California Chapter. New vice-chairman is E. H. Vernon, General Business Representative of the East Bay Automotive Machinists Union, International Association of Machinists, American Federation of Labor. Permanent secretary of the Council is Archie J. Mooney, Chief of the Division of Apprenticeship Standards; Paul Scharrenberg is ex-officio Administrator of Apprenticeship by virtue of his office as Director of the State Department of Industrial Relations.

Standards of apprenticeship

Apprenticeship standards are contained in a written document, the form and basic outline being recommended by the Council. The details, however, are developed in the local community by top representatives of management and labor who make up the local joint apprenticeship committee. These standards are subscribed to by the parent organizations representing employers and employees, and subsequently additional firms signify their desire to train apprentices under the terms of the standards, by letters of subscription.

The standards provide for: The length of the training period; wages to be paid the apprentices; job processes to be learned on the job, and the approximate time needed to learn each process; the time to be spent in related and supplementary instruction (not less than 144 hours a year, usually given in the public schools); the number of apprentices to be trained, in ratio to the number of journeymen employed in the trade and area or the individual shop; age limitations for apprentices, who must by law be at least 16 years of age; teaching of safety practices, both on the job and in the class; and granting of a State Trade Certificate to apprentices who have successfully completed all phases of the training program.

A far cry from the $50 and two new suits are the provisions of this democratic, voluntary law. Most apprentices are paid a starting wage equaling 50% of the journeyman's wage in the trade to which they are apprenticed, and those who are veterans receive training allowances from the Veterans Administration.

Local control

Industrial self-government with local control is the policy of the State Apprenticeship Council. Authority is given to local labor-management Joint Apprenticeship Committees to supervise the training of apprentices in their own trade. These committees comprise equal representation from management and labor, with representatives of the State's Division of Apprenticeship Standards and local schools acting as non-voting consultants.

Where there is no recognized employee organization, State Council members act as the Joint Apprenticeship Committee, and a representative of the Division of Apprenticeship Standards assists the firm in supervising the apprentices.

Apprentices work the same number of hours as journeymen, but always under supervision, to see that they learn all parts of the trade and become fully skilled craftsmen in the designated time. Terms of apprenticeship range from one to six years, depending upon the trade to be mastered. The majority of trades have a four-year training period.

Major growth in California's apprenticeship program has been in the last eight years. In January of 1945 there were approximately 6,000 registered apprentices in our State. With the end of World War II and passage of Public Law 346 (G. I. Bill), providing subsistence allowances and tools for qualified veterans, as well as the acute need of our industries for skilled mechanics and the willingness of employers to train them through bona fide apprenticeship, the number of apprentices started to swell. It hit a peak of 32,000 in 1948, and has leveled off since. Today there are approximately 19,000 registered apprentices in training in over 300 skilled trades, recognized as apprenticeable by the California Apprenticeship Council.

Council policies

The Council's policies are predicated upon the belief that apprenticeship programs must be designed to protect and advance the interests of both industry (management and labor) and the apprentice. They are the means by which

(a) An adequate supply of skilled workers is developed,

(b) Young persons are given opportunity to learn skilled trades.

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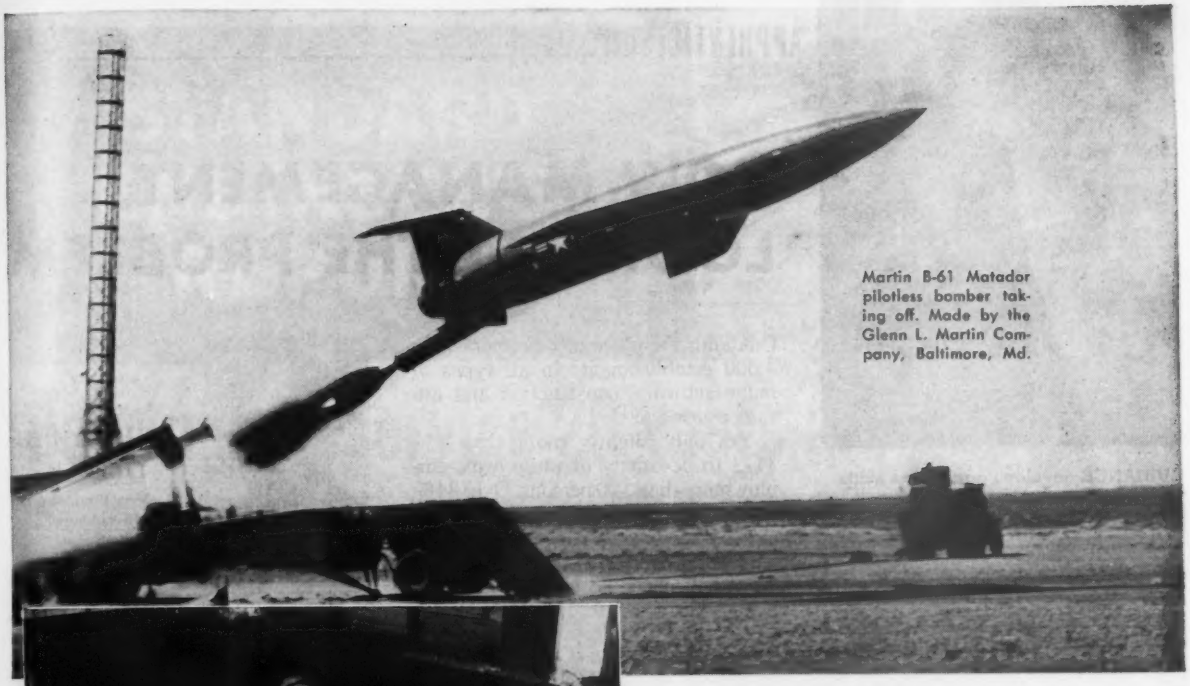
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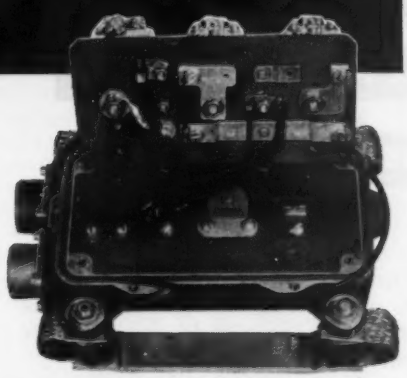
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Martin B-61 Matador pilotless bomber taking off. Made by the Glenn L. Martin Company, Baltimore, Md.



Jeep almost completely submerged. Can be operated in this position at about 9 miles per hour. Made by Willys-Overland Motors, Inc., Toledo, Ohio, for the Armed Forces.



Generator regulator for the 24-volt system of the submersible Jeep. This is completely waterproof and highly resistant to corrosion and fungi. Produced by The Electric Auto-Lite Company, Toledo, Ohio.



Illustrated are two of the many types of capacitors and filters made by Aerovox Corporation, New Bedford, Mass.; an important capacitor supplier to both Electric Auto-Lite and Glenn L. Martin. The unit above is the filter capacitor used in the generator regulator of the submersible jeep while the unit at the right is used in the pilotless bomber.



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The dramatic pictures on this page show two important special applications of Aerovox capacitors. One is the Martin B-61 Matador pilotless bomber. It contains an Aerovox capacitor, which has to withstand the terrific acceleration and speed of the craft. The other is the submersible Jeep. Its 24-volt electrical system is completely waterproofed, and includes Aerovox filters and capacitors for suppression of radio interference. Revere not only supplied copper and brass strip for the capacitor cases, but collaborated closely in setting up specifications, and in addition worked on a welding problem. In regard to the latter, an Aerovox Project Engineer wrote: "We have had much better welds." . . . Revere is always glad to collaborate on problems concerning copper and its alloys, aluminum alloys, and electric welded steel tube. Call the nearest Revere Sales Office.

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GUIDANCE develops apprentice skills

APPRENTICESHIP

HOW MANAGEMENT LOOKS AT THE PROBLEM



By WILLIAM H. OLIVER
Vice President
Oliver United Filters, Inc.

WHY do we need real journeymen today? Because the West is an area of small businesses, not large, and the small employer needs a greater percentage of highly skilled journeymen than one operating on mass production lines.

In the two counties of California (Alameda and Contra Costa) represented in the labor-management apprenticeship program culminating in recent mass graduation ceremonies in Oakland, there are a little more than 4,000 establishments in all types of manufacturing, construction and automotive repair shops.

Yet only slightly more than 4% (173 to be exact) of these firms employ more than 100 persons. Over 84% employ fewer than 20.*

If we are to keep pace with the phenomenal growth of the West, we must have skilled people to train an ever-increasing work force, more supervisors, foremen, superintendents and managers. What better place is there to go than to well-trained, well-rounded, skilled journeymen!

Higher skills mean a better standard of living. Not only do they command higher rates of pay, but because of higher skills people are capable of

*EDITOR'S NOTE: When the 1950 government figures are available for the nation and state, the same ratios will probably be close to those just mentioned. In 1947 the United States, as a whole, for these same industries, showed 80.8% had fewer than 20 employees each and only 4.1% had from 100 to 499 employees. The state figures were 84.6% and 2.8% respectively.



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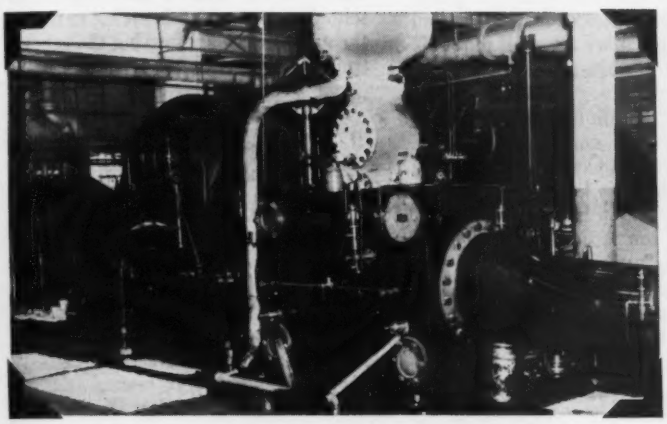
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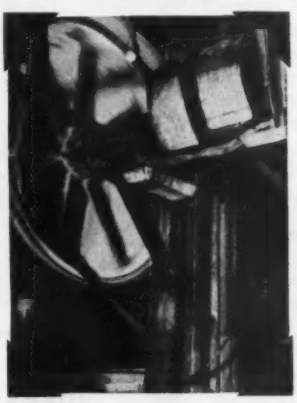
DATA	
LUBRICANT	Calol Red Engine Oil
UNITS	Steam-engine and line-shaft bearings
LUBRICATOR	Ring and drip-feed oilers
CONDITIONS	Constant load
PERIOD	20 years
FIRM	Spreckels Sugar Co., Manteca, Calif.

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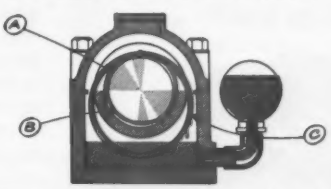




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6. An attraction for new industries to locate here and for established industries to expand.
7. A stimulant for pride of craftsmanship.
8. An unusually fine opportunity for management, labor and educators to work together for the good of all.

turning out greater production of goods or services. Increased individual productivity is the greatest single contribution to an expanding American economy, which in turn results in a better standard of living for all.

Competition has long been the driving force that has made the improvement of a product or a service or the creation of *new* products a requirement for expansion or even survival. Again skilled craftsmen are better equipped to provide the ideas and the know-how that help meet or better the competition.

Needs are great

If our dreams of a large industrial West are to come true, we must be able to assure interested industries that our ratio of skilled people is adequate to meet their needs. The best way to do this is by way of an outstanding labor-management apprenticeship program, but the requirements for more skilled men are so great we must all redouble our efforts to interest young people in the skilled crafts.

We have a unique labor-management apprentice committee in Alameda and Contra Costa counties. It is unique in that the labor side is made up of two competing unions — the C.I.O. and the A.F. of L. The machinist joint apprenticeship committee has been in successful operation from the start, which was over seven years ago. As a management member of this committee, it has been a source of great satisfaction to see these two rival unions pull together on apprenticeship.

No man can be a big success unless he has a real pride in his job. No one likes the title of "Joe Magee." A good apprentice course will produce a man who will carry the title "journeyman" with great pride.

Our joint program provides an unusual opportunity for management, labor and educators to work together. Labor and management can do excellent "on the job" training, but a real journeyman can never be produced without a good related training, which can best be done by educators. Fortunately in this area we have a splendid school system which is seeing to it that the apprentices are getting the related training that the labor-management teams want.

Figures prove need

The 1950 Census Bureau figures show that of the 135,000 persons employed as skilled craftsmen in the San Francisco and the East Bay industrial areas, nearly 17% were 55 years of age or older. But in certain trades such as tool makers, pattern makers, molders and carpenters, the percentage runs as high as 23%. This is much too high a figure.

Authorities estimate that in order to take care of losses in the skilled trades due to deaths, retirements and changes of occupation, the replacement rate must be nearly 4% each and every year. For the sake of easy figuring, multiply the number of journeymen in each union by, say, only 3% and you will see that every craft should have *many* more apprentices. The 4% replacement does not make any allowance for new or enlarged establishments.

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EMPLOYEES at Westinghouse Electric Corp. Sunnyvale plant earned almost $4,000 from the company's suggestion system in 1952. During the year employees turned in 646 ideas for improving the company operations. For the 222 suggestions adopted, $3,992 were paid. The best previous year was 1951 when 130 employees earned $1,386.

Acme Steel announces

revolutionary new advance in wire stitching



In Acme Steel's new Arcuate stitching method, flat stitching wire is formed into an arc, increasing its column strength, making a smoother stitch with lighter wire, delivering up to 42% more stitches per pound of wire. Faster, too!

New Acme Steel Arcuate Stitching cuts wire costs 24 per cent

HERE'S HOW IT WORKS: Wire stitching has long been favored for assembling and closing of cartons of all types. Now "Stitching Headquarters"—Acme Steel Company—announces a new stitching method: Arcuate Wire Stitching.

In Acme Steel's new Arcuate Stitching method, regular flat stitching wire is formed into an arc by the stitching machine, making a stronger stitch so you can use lighter gauge wire for boxmakers' joints or any other stitching jobs. Increased column strength makes each stitch easier to drive. Stitches drive straighter, clinch better, hold tight.

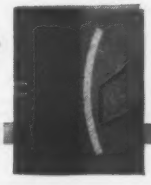
RESULT: You save 24% in wire costs. You get 42% more stitches from each coil of wire (using .103 x .014-inch instead of .103 x .020-inch wire, for example). Arcuate Stitching virtually eliminates machine jamming—reduces down time and produces perfect stitches more consistently. This means that you can stitch more cartons per day, and get a better-looking carton every time.

It's easy to adapt your present equipment. There are conversion parts-kits for most popular model stitching machines.

CALL your Acme Steel representative for all information. Or, for a free folder giving complete details and a stitched sample, write to Acme Steel Products Division, Dept. WI-73, 4901 Pacific Blvd., Los Angeles 58, California.

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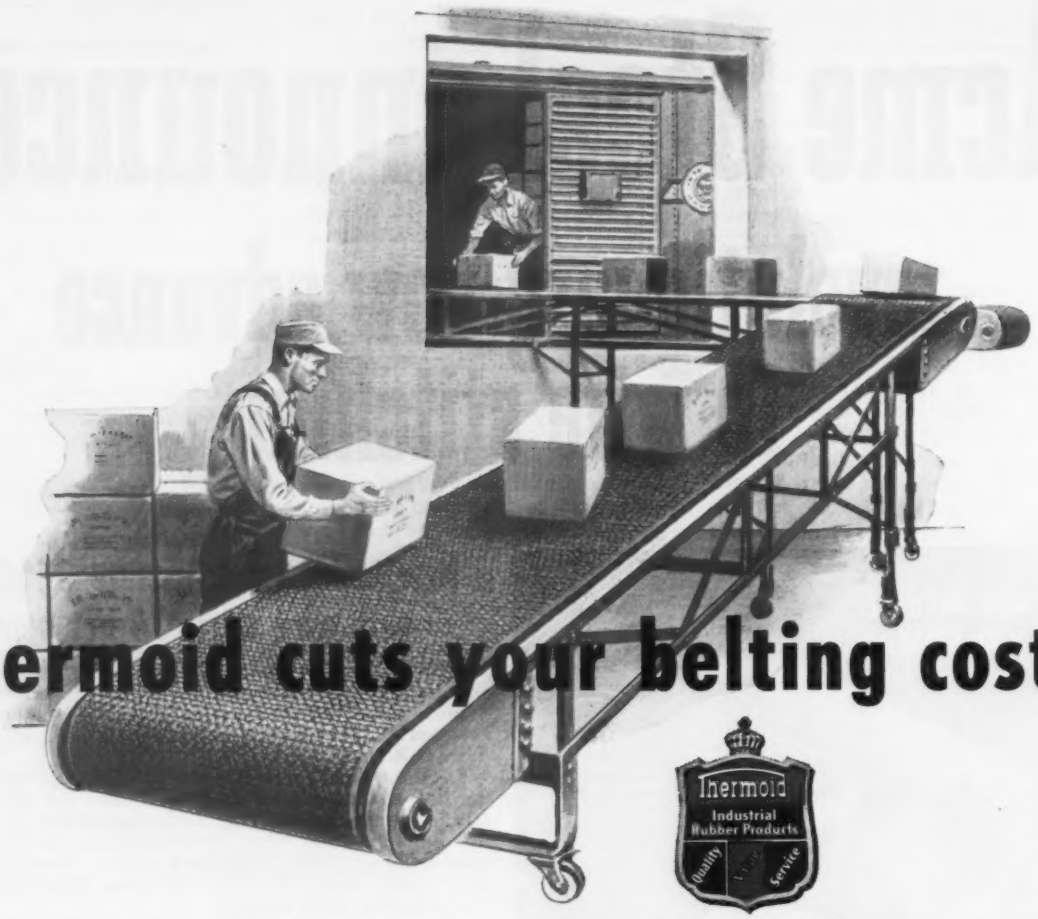
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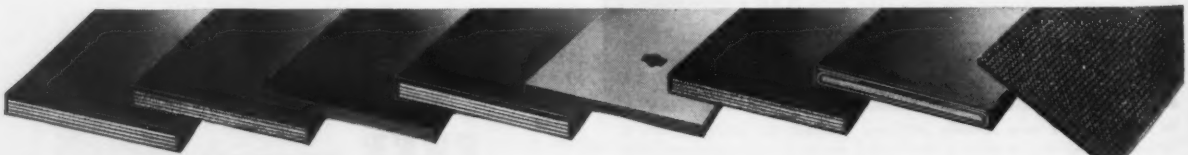
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CRAFTSMEN ARE INDISPENSABLE

The better the training, the better the craftsman, the better the job . . .



By
WINFIELD H. ARATA
Manager
Northern California Chapter
The Associated General Contractors of America, Inc.

INDUSTRIAL production is the keystone of our civilization and the skilled worker is in turn the keystone of production. Modern civilization depends on industry, and therefore any improvement in production is an improvement in the economic life of man.

The place of the skilled craftsman in industry is vital to our existence. Apprenticeship is the means by which skilled craftsmen are produced. The better the training the better the craftsman. Management and craft unions working together with the cooperation of federal, state and local governmental agencies are carrying on the program for the training and education of apprentices.

Every major industry throughout the United States is actively engaged in training apprentices, and the quality of this training is producing craftsmen better qualified than ever before.

Any industry not participating in an apprenticeship program is not looking into the future with respect to perpetuating itself.

For responsible men

Through this program young men of responsibility will find a means to provide a better way of life for themselves and their families, and also become responsible citizens in their community. The opportunities available to the young man today are tremendous. Not every one may want to be a bricklayer or a plumber or a watchmaker, but the young man of today has the opportunity to pick the craft that is most to his liking. Many persons are not by nature or temperament suited for work in the crafts. The training programs are such that the adaptability or suitability of the apprentice to the work he is undertaking is discovered early.

The different crafts have adopted standards for the education and training of their apprentices as our colleges and universities have adopted a curriculum for education for the professions. However, the apprentice earns while learning, whereas the college student does not.

The apprentice must spend several years in learning his trade. He learns by actual work on the job as well as by class instruction and reading. When the apprentice is graduated as a journeyman he finds himself qualified for profitable employment. Employers are then assured of having qualified workmen, and the public benefits by having work done in workmanship manner.

It is the responsibility of labor and management to maintain the highest production. This can only be done by broadening and training our nation's workmen in the skills of their trades.

While the supply of labor in numbers is adequate, it is not nearly adequate as far as essential skills are concerned. Not only are new plants being built, but older ones are being enlarged, and management is faced with the problem of securing more trained workers.

Thousands enrolled

The apprenticeship program throughout the United States has enrolled thousands. In California there are approximately 19,000 active apprentices now in training. Approximately 3600 are in San Francisco, 2750 in Oakland and another 1000 are scattered in other Bay Area counties. This number may seem large, but industry needs even more, due to the great industrial expansion in the West, and the fact that many workers are now retiring at early ages.

Many successful contractors, executives and business men started their career in an apprenticeship and worked up through their craft. So, to young men about ready to establish themselves, industry offers a splendid opportunity to earn and learn through apprenticeship.



APPRENTICES in the field of electronics are given an unparalleled chance to learn the intricacies of their trade while earning a substantial wage. Olden day apprentices lived under a strict master-pupil arrangement and had considerably less economic freedom than do those of today.

NORTH AMERICAN APPRENTICESHIP CONFERENCE

THE PUBLIC probably does not realize that we have 450,000 apprentices in the United States with a national population of 155,000,000. More outstanding, however, is the fact that Western Germany has over 2,500,000 apprentices learning skilled trades with a total population of about 55,000,000.

It's time we compared notes on what we have and how we can do better.

To that end, more than a year of planning has gone into the First North American Conference on Apprenticeship scheduled for San Diego, August 2-9, 1953.

This meeting is intended to be a workshop on the important program

By
GEORGE C. CLARK
Administrative Assistant
Industrial Relations
Solar Aircraft Co.
San Diego



of training craftsmen. It will be a practical example of how labor and management work together for industrial advancement.

Conference programming is built around the theme of "better workers, better industries, better nations." Attendance in excess of 2,500 is expected from Canada, Mexico and the United States.

Site of the Conference will be the 1,400-acre Balboa Park, located in the heart of San Diego. Cooperating in this venture are the members of the San Diego Board of Supervisors, the City Council, the Chamber of Commerce, the San Diego Convention Bureau, representatives of the large naval installations, the aircraft industry and nearly all other segments of the community.

Planning and arrangements

Conference planning and arrangements are under the direction of the San Diego General Planning Committee, composed of leaders from labor and management.

Registration will begin on Sunday, August 2, and continue through Monday morning. The opening session at 9 a. m. Monday morning will witness the presentation of flags from all three nations and their various states and provinces. Key figures of state and local groups will extend welcoming remarks to the conferees.

Monday afternoon, the keynote speech will be given by Harold C. McClellan, president, Old Colony Paint and Chemical Co., regional vice president, National Association of Manufacturers. He will be followed by James Brownlow, representing the American Federation of Labor.

Throughout the week-long schedule, outstanding speakers will address the conference. Climax of the affair will be the conference banquet on Thursday, August 6. Reservations for over

. . . at long last!!

CLEAN CONDENSERS

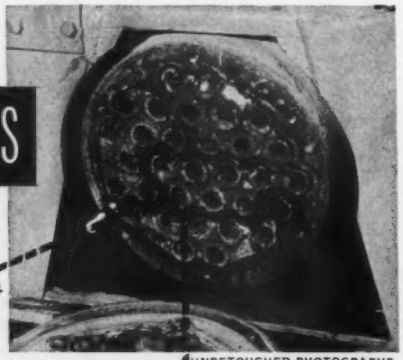
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AUGUST 5, 1952

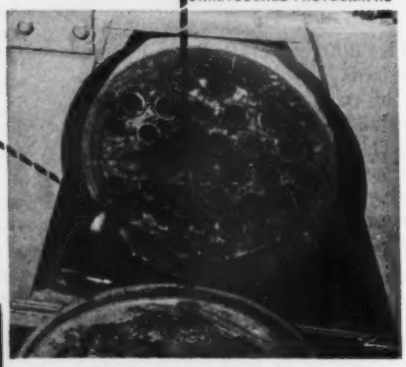
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1,800 will be set in the Balboa Park Club for the occasion.

Complete program

For families of conferees, recreation has been arranged which includes trips to Mexico, Palomar Observatory, the Scripps Museum of Oceanography and the world-famous San Diego Zoo. Arrangements are also being made for visits aboard naval vessels and tours of aircraft plants and other sight-seeing novelties. Highlight of the entertainment, to be presented in the San Diego Starlight Opera Bowl on Wednesday evening, will be a performance of the light musical comedy "Gentlemen Prefer Blondes."

Various section meetings scheduled throughout the conference week will embrace a full program of discussion and review of all principal apprenticeship training programs. These meetings will provide an opportunity for conferees to discuss and compare similar program operation, progress and effectiveness. Those who attend will have a rare opportunity of exchanging ideas on problems and difficulties encountered in the development of skilled workers.

The committee is planning a week-long schedule of events designed to entertain and relax the conferees while providing interesting and instructive meetings on apprenticeship.

Attendance at this conference of all persons interested in alleviating the critical shortage of skilled manpower in our industries is a must!

HIGHLIGHTS of the Conference Agenda

Sunday, August 2

Registration, U. S. Grant Hotel

Monday, August 3

General Opening Session
Keynote Addresses:

Apprenticeship Training Guarantees Skilled Workers (Two national speakers, from management and labor)

Safety—A Vital Part of Training (Two national speakers, from management and labor)

Tuesday, August 4

Fundamental Values of Apprenticeship Training . . .
- . . . to the Apprentice
- . . . to the Journeyman and the Union
- . . . to the Employer and Employer Organizations
- . . . to the Public and the Community

Preparation for Apprenticeship

Selection of the Apprentice

Public Information, Public Relations and the Press

Wednesday, August 5

Section Meetings:
- Related and Technical Instruction
- Federal and State Apprenticeship Agencies
- State and Local Joint Apprenticeship Committees

North American Day Activities

Apprentice Night, Starlight Opera

Thursday, August 6

Section Meetings:
- Metal Trades (Mass Production)
- Service Trades
- Mines and Minerals
- Metal Trades (Shops)
- Graphic Arts
- Lumber and Forest Products

Canference Banquet

Friday, August 7

Section Meetings:
- Building and Construction Trades (Heavy)
- Transportation
- Veterans Affairs Related to Training
- Building and Construction Trades (Light)
- Light, Power and Communications
- Metal Production (Iron, Steel, Aluminum, Copper, etc.)

Saturday, August 8

Report from All Section Meetings

Adjournment

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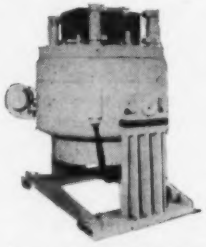
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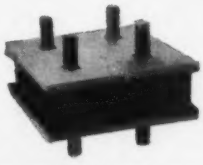
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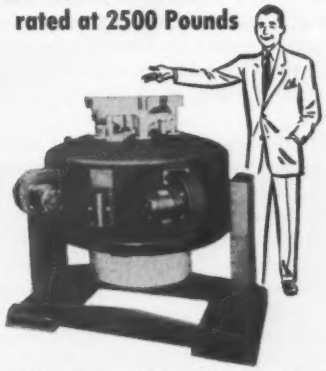
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IS APPRENTICESHIP TRAINING THE ANSWER?



By
ROBERT F. GIRARD
Staff Representative
California
Metal Trades
Association



SKILLED journeymen are becoming rare in many crafts due to the advent of push-button industry. Apprentices must be trained to perpetuate these skills.

ONE of the most critical problems which American industry faces today is the shortage of skilled manpower. The lack of a sufficient number of accomplished craftsmen is a very real need. For evidence of this we need look no further than today's newspaper.

Front-page accounts of labor crises have become almost commonplace. The "Help Wanted" columns of almost every good-sized newssheet have contained advertisements for experienced tool and die makers, completed machinists, journeyman carpenters and electricians, and so on for many months now. And how often have many firms wished they could beg, borrow or steal a good journeyman?

Since the outbreak of hostilities in Korea, the Department of Employment in California has recorded the demand for skilled workmen in what it terms its "shortage occupations." In analyzing the figures collected for the San Francisco-Oakland Metropolitan Area, the total demand for skilled workers, as well as the demand in each of three metal trade occupations which the government lists as critical, was used. From this it is obvious that the shortage problem, at least in the above area, is far from being solved.

It should be noted that the accompanying figures represent "requests" for skilled workers made to the Department of Employment. The actual demand, which is not measurable, could conceivably be many times greater.

A hunt for new sources

With these facts in hand, and confronted with a rapidly increasing industrial expansion here in the West, and to an even greater degree in California, new and more abundant sources of skilled workmen must be found. In the past a substantial percentage of our true craftsmen eagerly journeyed to this country to embrace a new life. From the turn of the century till about 1925, we secured most of our skilled workers from Europe. However, this source has virtually dried up and the "old craftsmen" now represent a very small part of our labor force.

Therefore, other and necessarily faster means of securing competent and complete journeymen must be utilized. When the same problem existed during World War II and earlier periods of manpower depressions, single-purpose programs were developed and put into effect.

These programs did serve to alleviate manpower deficiencies in certain job operations for certain periods of time. However, these programs failed to provide for our industrial requirements in the long run, as is evidenced by our persent dilemma. They created semi-skilled workers who were capable of performing one or a few operations, and lacking the technical ability and initiative in production which is so important.

There remains but one source from which the trained skilled journeyman can be derived and from which an adequate number of available craftsmen for the long run can be created—apprenticeship training. Admittedly, industrial "know-how" takes time, and the normal apprentice training course is four years. But the certainty of providing American industry with the skills required must be worth it. Be-

Shortage occupations*—San Francisco-Oakland metropolitan area (6 counties)

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1950 total "shortage"	....	....	....	....	....	....	....	....	1427	1124	718	927
Skilled "shortage"	....	....	....	....	....	....	....	....	698	594	373	703
Machinists	....	....	....	....	....	....	....	....	9	72	71	73
Tool and Die Makers	....	....	....	....	....	....	....	....	....	....	....	5
Molders	....	....	....	....	....	....	....	....	1	4	6	30
1951 total "shortage"	705	655	835	1393	1306	1214	1177	1056	1081	948	999	1184
Skilled "shortage"	350	360	591	1071	957	891	850	833	999	856	883	869
Machinists	29	51	186	369	322	352	298	258	282	237	386	331
Tool and Die Makers	6	1	....	13	5	16	16	17	16	16	13	13
Molders	23	21	20	35	25	10	16	6	....	....	....	....
1952 total "shortage"	807	676	804	639	478	563	587	416	780	649	1106	990
Skilled "shortage"	790	563	682	538	367	456	574	399	758	584	678	651
Machinists	325	249	301	233	151	179	253	153	171	145	169	178
Tool and Die Makers	13	23	26	8	10	6	6	8	106	111	112	112
Molders	2	....	....	....	....	....	4	....	....	....	....	....

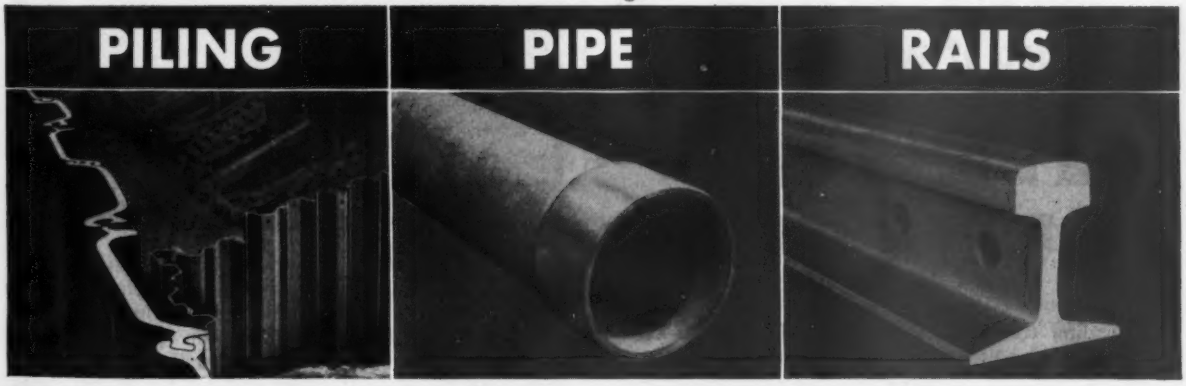
*An occupation for which the employer cannot recruit needed workers within the area and in a reasonable period of time by normal recruitment methods.

Announcing . . . the opening of

L. B. FOSTER CO's LOS ANGELES OFFICE

Better service for the Western States





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DUnkirk 3-3156

Bound to be welcome news to ever-growing western industry—L. B. Foster Company opens its Los Angeles headquarters. To users of pipe, rails, and piling who aren't yet Foster customers—we're proud to state that ours is a company that specializes in service—prompt, dependable, backed by the Foster guarantee, and always at the lowest possible prices. Our 50-year list of customers is still growing because buyers seem to "like to do business with Foster." Try us. Let us show you why!

L.B.FOSTER CO. **3460 WILSHIRE BLVD. • LOS ANGELES 5**

PITTSBURGH • CHICAGO • NEW YORK • LOS ANGELES • HOUSTON



Threads 4 sizes of pipe *fast* with 1 set of dies— *and it won't jam!*

RIDGID

65R PIPE THREADER

This popular 65R has saved millions of hours of threading time, and no wonder—its one set of self-contained high-speed dies adjust to 1", 1¼", 1½" or 2" pipe size in 10 seconds! Mistake-proof self-centering workholder sets instantly! And lead screw won't jam on workholder, kicks out automatically at standard thread length! You can't match it for fast easy pipe threading—buy it at your Supply House.

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

RIDGID
Work-Saver Pipe Tools

yond that, it is our best source of skilled workers because it has provided and is providing the following:

(1) An established, formalized training program which has been developed by craftsmen themselves and based on years of experience. This includes related classroom instruction.

(2) Careful selection of applicants entering the program. Consideration is given to aptitude, related experience, interest and educational background.

(3) A thorough check and evaluation of the progress of each apprentice throughout the training period.

(4) A safer and more conscientious worker who is more familiar with the trade and the shop in which he works.

(5) Our best future source of supervisory and executive personnel. One need only look at the roster of American management to confirm this point.

(6) Upon finishing the course, the apprentice is a completed, full-fledged journeyman in his trade.

The State Division of Apprenticeship Standards and the Federal Bureau of Apprenticeship report that nearly every company which is cooperating in the program finds that apprenticeship training pays its way. They also state that virtually any type of skilled trade can be made apprenticeable. To those firms where experience has demonstrated its value and effectiveness, apprenticeship training *IS* the answer!

HOWITZER EXAMINATION

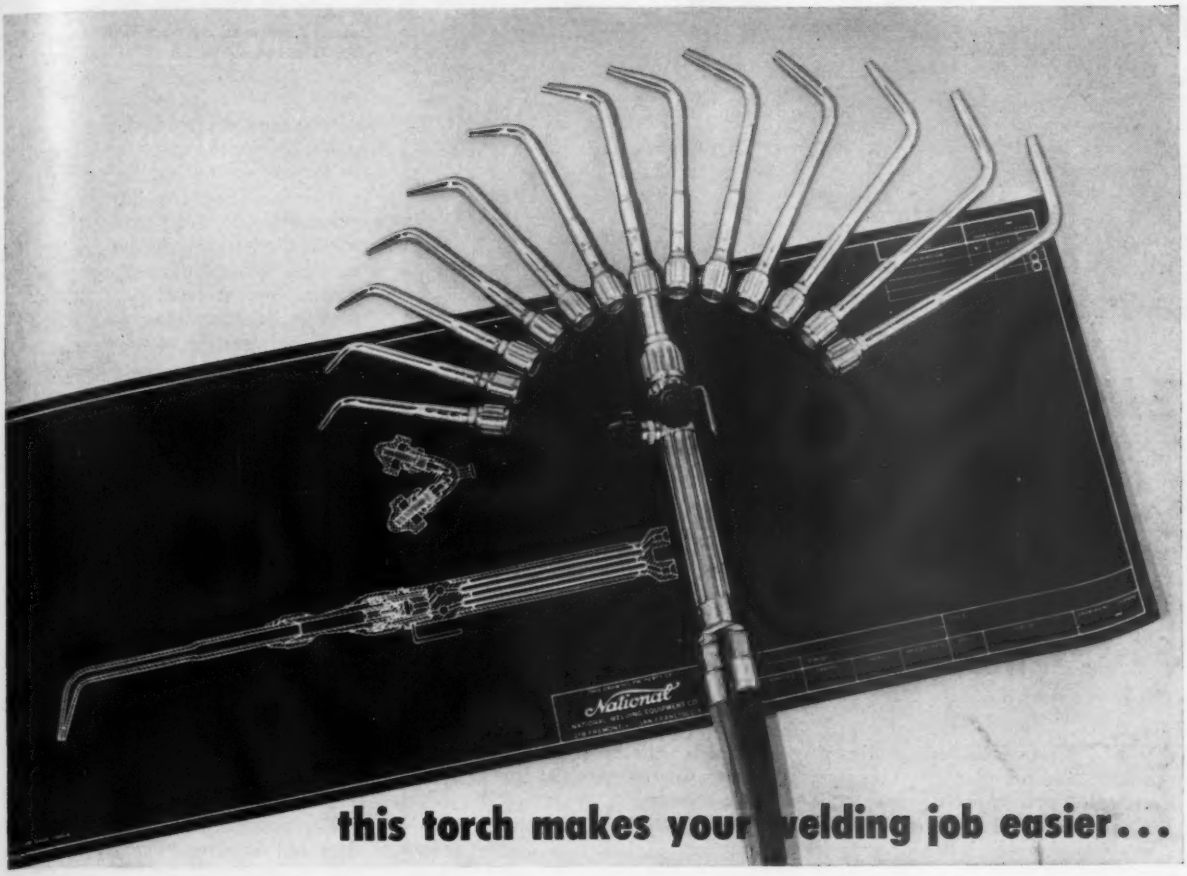


A 155-MM HOWITZER from Yuba Manufacturing Company's new structural shop at Benicia is being inspected before shipment to the Armed Forces. During World War II Yuba is said to have built more than 60 per cent of the 155-mm. howitzers used by the allies. The new structural shop, with 20,000 sq. ft. under roof, has two 10-ton cranes with 70-ft. span, and height of 31 ft., 7 in. from floor to top of crane rails. Other plant facilities include light and heavy machine shops, welding, forge shop, cast iron and bronze foundry, and pattern department.

McCULLOCH EMPLOYEES earn fat bonus

A $400,000 BONUS to be shared by employees of McCulloch Motor Corp. is announced for the close of the company's fiscal year on June 30. This is the fourth consecutive year that the Los Angeles engine-manufacturing firm has given employees substantial bonuses.

All employees with the company four months or more will share in the bonus, which averages more than $200 for each of the company's nearly 2,000 employees. Ten per cent of their previous year's pay check will be given to all employees of three years or longer.



for aircraft parts and other light gauge metal welding nothing could serve you better...

and here are the definite reasons "why"

If you weld small aircraft parts, work on sheet metal or do any of a hundred odd things requiring expert care and delicate torch manipulation, this torch is made for you.

Light in weight, beautifully balanced to respond to your slightest touch, it offers you a choice of thirteen welding nozzles with finely graduated flame sizes.

Each nozzle is plainly marked both with number and drill size; this makes your nozzle and tip cleaner size selection easier.

Each nozzle is carefully polished and chrome plated to diminish slag adhesion.

The patented mixer sealing ring (first developed by NATIONAL) makes tight sealing an assured thing without use of wrenches; and you may turn the nozzle in any desired direction while welding.

For easier flame adjustment we chose large ribbed, color identified, plastic needle valve wheels; we used them for many years on tens of thousands of torches with wonderful success; they stay cool to your touch.

We provided an easily removable hook to hang the torch onto a gas saver . . . if you don't require it, lift it off the torch.

Really, you ought to try this torch . . . we promise you a pleasant experience.

Made by National SINCE 1910 WELDING EQUIPMENT CO., San Francisco 5, California

529



PLANS for construction of safety equipment discussed by part of the committee with Joseph Levada, chief engineer (r.)

EMPLOYEES CARRY THE BALL IN THIS SAFETY PROGRAM

Committee has entire responsibility, except financial. Workers' suggestions build up score

SHELL CHEMICAL employees at the butadiene plant in Torrance, California, are entirely responsible (except for financial control) for the safety program which has resulted in two National Safety Council awards for perfect records in 1951 and 1952. Safety suggestions from the employees have helped materially in putting the program over.

Following the shutdown at the conclusion of World War II, the plant was reactivated December 6, 1950. Since that date, Shell Chemical employees, operating the plant 24 hours a day, seven days a week, had worked more than 840 days without a lost-time accident, when this article was written.

Concerns everyone

"Here at this plant where we manufacture one of the major components of synthetic rubber, safety is everyone's business," plant manager Maarten Voogd said. "No safety program can operate successfully if handled from the top down. It must have representation from the entire employee group in order to accomplish the greatest good."

Early in 1951 the Torrance plant safety committee was established. Made up of representatives of all departments in the plant, the 15-member employee committee is entirely responsible for the plant's safety program, except for the financial control which of necessity remains in the hands of management.

The committee has the responsibility and authority to present safety measures, and may call upon any department in the plant for assistance in gathering the information necessary to present improvements and changes.

Meeting once a month under the present chairmanship of Charles Hahn, operator No. 1 in the extraction department, the committee has processed more than 120 safety suggestions, adopting all but two. Committee members working at operating jobs in the plant frequently receive on-the-job suggestions from co-workers. Others come from alert maintenance foremen, chief operators, and fire inspectors.

Typical action by the safety committee was their disposition of safety suggestion No. 94. Because the automatic discharging of the plant's hot exhaust steam condensate was a potential hazard from possible burns, plus an objectionable noise created by escaping steam, it was recommended that the system be redesigned or relocated.

The committee discussed the problem with the department manager responsible for all utility operations. Since the hazard was apparent, it was decided that steps be taken to correct the situation.

At the request of the safety committee, members of the technological, engineering, and operating departments met and designed a suitable column or cyclone separator. Installation of the separator has completely eliminated the hazard of escaping hot condensate and reduced the objectionable noise to a minimum.

Alternate for each member

Replacement of employee members does not interrupt the work of the safety committee. Under the original organization plan, each member has an alternate who succeeds the member at the end of a one-year term. In addition, there is a partial membership turnover semi-annually, permitting a greater amount of employee participation and assuring maximum continuity for the plant's safety program. As secretary, Robert Mobley, head fire and safety inspector, is the only permanent member of the committee.

Through their committee, Shell



INSPECTING installation of a new safety device suggested by an employee. Committee may call on any department for aid.

WHY IT PAYS TO BUY STEEL FROM WAREHOUSE



You don't waste costly time rehandling steel stocks!

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UNLOADING and distributing bulk shipments of steel to storage area and then to production and job sites demand added time, manpower and equipment. Eliminate these added costs by letting U. S. Steel Supply deliver your steel to the spot, in the condition and at the time you need it. Fifteen warehouses with the most modern steel handling and delivery equipment assure your complete satisfaction.

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UNITED STATES STEEL

Chemical employees have literally taken safety off the bulletin boards and put it to work in the plant, Voogd said. To do this, they have every plant facility at their disposal. Safety features are published in the employee magazine. Every employee, upon entering or leaving the parking lot, sees a huge tire with the plant's safety score on one side and a timely reminder, "Safety is Here to Stay, Are You?" on the other side.

Films tell story

Other media used by the committee to tell the safety story are safety films which are shown to all employees each month, and safety committee manuals containing the minutes of the meetings. Every department and operating unit has a manual so that employees may see their plant safety program results.

Now that practically all mechanical hazards have been removed from the plant, the committee is devoting most of its work to personnel accident prevention. Based upon an accident cause analysis chart supplied by the fire and safety department, the committee's educational program for this phase of safety consists of visual aid training, safety reminders throughout the plant, personal contacts, and the scheduled showing of appropriate safety films.

Indoctrination of new employees includes a two-hour discussion on plant safety practices with the head fire and safety inspector. In addition to on-the-job safety training, the committee devotes some of its program to traffic, home, and vacation safety.

Commenting on industry safety programs, Voogd said, "In its aspect of reducing human suffering, industrial safety is primarily a humanitarian affair and for that reason one of the strongest binding forces of any organization."



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SUPERVISOR STATUS
Points for group discussion

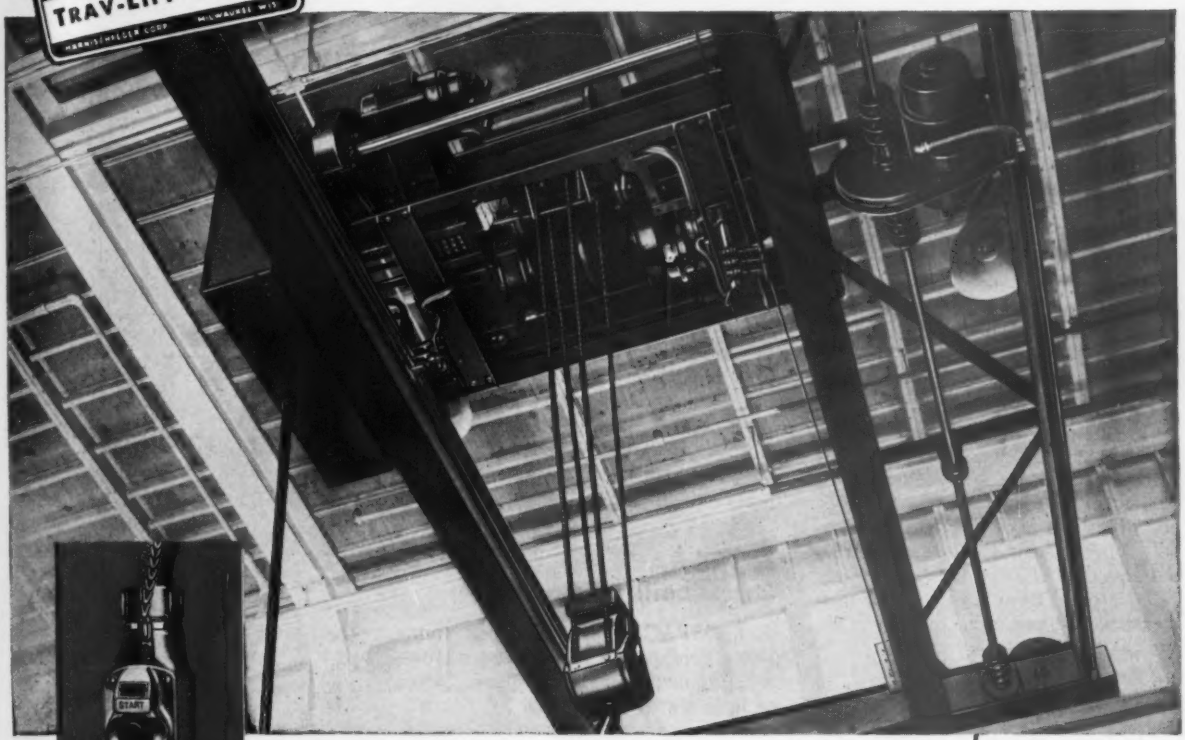
HERE is a suggested topic list for group discussion of the status of the first line supervisor. It was used by the Mountain States Employers Council in a series of workshop meetings. (See page 35, this issue.)

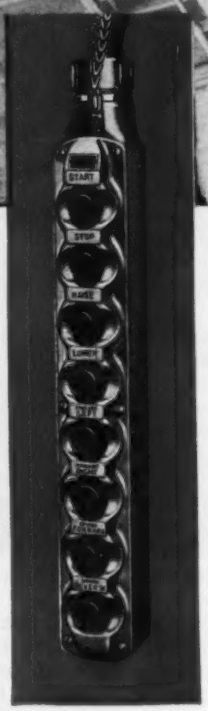
Mostly top management representatives were in attendance at the meetings, although there were some foremen present.

1. Do your first line supervisors perform the duties and carry the responsibilities shown on the attached job description?
   .....how do they differ?
2. What functions do your supervisory personnel carry out in
   .....hiring new employees?
   .....training employees?
   .....discharging employees?
   .....processing grievances?
   .....interviewing employees on merit rating?
   .....recommending employees for promotion?
3. What pay structure have you set up for your first line supervisors?
   .....random rate?
   .....rate ranges?
   .....what per cent of differential is maintained between your first line supervisor and the highest classification which he supervises?
4. What fringe benefits do you provide for your supervisors? For example—
   .....any incentive plans?
   .....stock purchase option?
   .....extra benefits on group insurance or pension plans?
   .....sick leave?
5. Do your supervisors enjoy any special privileges? Such as—
   .....parking space?
   .....special dining rooms?
6. Do your supervisors participate in any conferences relating to
   .....policy making?
   .....management training?
   .....cost and budget control?

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● Whatever it is, make the job easier and faster with the P&H Trav-Lift Cranes. Serve an entire bay with "thru-the-air" handling over congested floors. No out-of-reach spots! No rehandling. One man lifts, transports, and stores loads up to 15 tons by pressing buttons.

You save money, too, when you choose a P&H Trav-Lift. Your initial investment is lower because Trav-Lift Cranes are custom-made to your needs from standard money-saving designs. This means tailor-made service at "stock" prices.

The P&H Trav-Lift is built to meet a variety of needs . . . with either cage or floor control . . . with suitable spans and lifting speeds . . . in capacities up to 15 tons. Call P&H for expert assistance with your handling problems. Write for booklet H-13-1.



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P&H Trav-Lift Cranes are made *in* the West, *for* the West. When parts or service are needed, remember, we're neighbors. Drop in and see our new Pacific Division headquarters — the West's most modern crane factory. You'll get fast, experienced help with your problems.

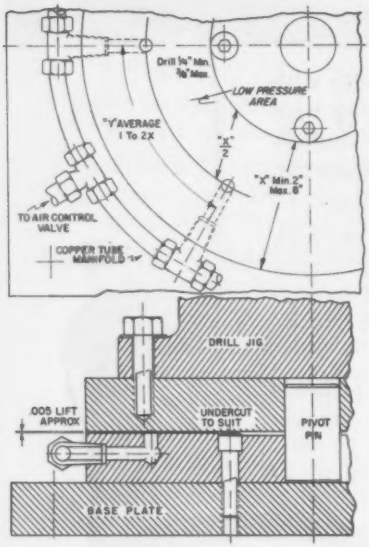
Branch Offices: San Francisco, Calif., 100 Bush St., Room 212 Shell Bldg. • Los Angeles 59, Calif., 2400 East Imperial Highway • Seattle 4, Washington, 2909 First Avenue, South • Denver, Colorado, Room 415, Central Bank Bldg., 1108 - 15th St.

EFFICIENCY KINKS

THRUST BEARING problems? Try compressed air

TOOL DESIGNERS at Solar Aircraft Co., San Diego, have worked out a novel use of compressed air. It is now being used as a substitute for a conventional thrust bearing between a heavy rotating plate and a fixed base plate of a machine tool. The resulting application on a Natco multiple spindle drill unit has proved useful and inexpensive, displaying several advantages over ordinary methods of doing the same job.

The sketch shows how the "air thrust bearing" is employed on the index table for a drill jig. The copper manifold tube is connected to a manually-operated air valve that controls the air supply. Tube tees located radially around the plates lead air into the space between the moving plate and the fixed plate.



Operation of the bearing is as follows: Air at 90 psi. is introduced into the manifold by opening the air valve, and causing the rotating plate to be raised approximately .005 in. The rotating plate is then moved to the next index point and the air valve is closed. Air in the system escapes and the rotating plate settles down on the base plate providing a solid support for the drilling operation.

Air entering through the holes travels around the contact area of the plates giving an effective lifting area equal to the base plate area of the face. The differential between air entering and escaping is approximately 45 psi. on the area between the plates. This pressure, multiplied by the contact area of the plates, is the actual lifting capacity of this type of bearing.

Cost of providing an air bearing is much less than a conventional thrust bearing, especially when jigs are large or heavy. Since the friction coefficient is lower, the rotating plate turns easily and can be operated by women. On air bearings the contact area of the plates must be protected against chips. For this, felt wipers can be used to seal the joint formed by the plates.—*Solar Aircraft Co.*

* * *

HOSE RACK keeps coils off floor

A COMPACT rack will keep your unused coils of steam and water hose neatly coiled and off the floor. Coils of hose are hung in place by a short piece of rope with hooks on either end. By hooking one end to a bar at the top of the rack and then putting the other end through the coil of hose and hooking back to itself, a neat and compact coiling method is obtained.—*W. S. Jennings, Clayton Manufacturing Co., Alhambra.*

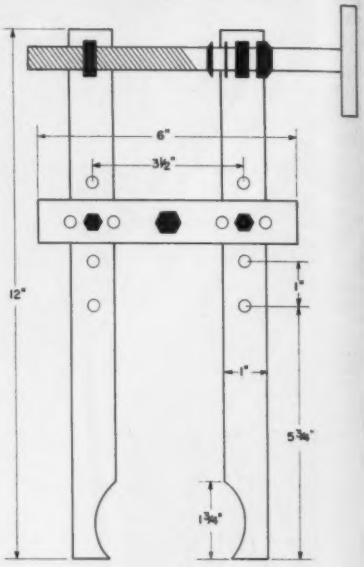
* * *

HOSE AND TUBE BOXES roll out of the way

LOW BOXES mounted on casters so that they will roll under a work bench and out of the way, catch short pieces of new and scrap hose and tubing for re-use. The boxes, approximately 32 in. x 60 in. x 12 in. high are convenient and accessible, promoting more scrap for the box and less for the garbage pile. Laboratory development work lends itself to re-using of this scrap that would otherwise be discarded. The number of different test set-ups is sufficient to make a saving of $100 per year through the use of reclaimed materials.—*W. S. Jennings; W. A. Clayton Manufacturing Co.*

CONTRIBUTIONS WANTED . . . Send in your suggestions, ideas, or helpful hints that might be used by our readers.

CHAIN TIGHTENER cuts time by two-thirds



SPROCKET chains used on lumber carriers on the drive wheel require weekly maintenance. These chains are under heavy loads causing wear and stretch, and necessitating the removal of links.

Link removal can be accomplished in one-third the time by utilizing a Chain Tightener, shown in the sketch. A link can be removed from the chain without removing the chain from the truck. To get at the chain it has previously been necessary to remove the chain guard and the wheel sprocket. This requires an hour and a half in most cases. With this handy device the job can be done in 30 minutes—a saving of one hour.

Material for the construction for this device costs $1.60, and labor $2.30 per hour, bringing the total cost to $3.90.—*William L. Rodrigues, Oakland Army Base.*

* * *

RADIATOR-TANK machining idea

A METHOD of machining large radiator-tank castings eliminates setting up tanks on the milling machine table twice to make one long cut. Now tanks are set up on an angle table which can be re-located on the mill without disturbing the set-up.—*Kenworth Motor Truck Co., Seattle.*



Durasheath: for lower-cost power distribution

DURASHEATH* is a light, tough cable. It is easily installed and thoroughly dependable for series or multiple street lighting, traffic control, and airport† lighting, residential primaries and secondaries as well as for industrial plants and railroads. It may also be used as Type USE cable for underground service entrance.

DURASHEATH cable can save you money. You can run this flexible, easily handled cable underground (buried directly in the earth), overhead or in ducts (or in any combination of these) without needless, time-consuming jointing. Its light weight and flexibility make duct pulling fast even in zero weather. Aerial assemblies go faster. Linemen like to work with it.

* * *

As one of several types of ANACONDA power cables, DURASHEATH is available in all sizes, single or multiconductor, copper or aluminum, from 600 to 15,000 volts. *Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.*

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ANACONDA®

Primary and secondary distribution cables • building, machine tool, control and communication wire • portable cords and cables • bus-drop cables • apparatus cables • copper, aluminum, copperweld conductors • wire and cable accessories.

†*when ordered to CAA Specifications L-824*

ANACONDA ON THE PACIFIC COAST: Plant at: Orange, Calif. District Offices at: Los Angeles, Calif.; San Francisco, Calif.; Seattle, Wash.

EDITORS ON THE MOVE . . .

HERE is something we don't recollect having seen in print. It seems that when Irving Olds, the recently retired chairman of U. S. Steel Corp., was at the Geneva mill just previous to his retirement, he remarked that the company retirement plan, when first inaugurated about ten years before his retirement date, seemed like a fine thing. Two years before his retirement, he began to have considerable doubts about it and when the fateful day arrived, he was convinced it was an outrage!

* * *

Art Lee, Public Information Director for the Idaho Operations of the Atomic Energy Commission, is a former Montana newspaper man. When working for the Associated Press at Helena, an ambitious would-be lady journalist applied for and got a job with the A.P. Part of her stint included a bit of news broadcasting, and on the radio she announced one spring morning, "Well, folks, I want to tell you that the vernal equinox is here to stay."

(Note: The young lady journalist is no longer working for the A.P.)

* * *

When press conferences get any more confused we hope we are not in attendance. During a recent press conference a multitude of editors and reporters were crammed into a conference room half the size of a telephone booth, and a valuable and exotic Mexican dog of the nearly hairless variety was, for some unknown reason, presented to the firm's president by a cowboy actor whose presence at the affair was unexplained.

Just what all this was supposed to signify was unknown—perhaps said actor had in mind swapping his dog for one of the company's products. At any rate, the dog, being a rather obstreperous type, had to be removed from the overheated press room, first to an anteroom and finally to the lawn outside, where it was entertained by several stenographers until the meeting was over. . . .

It further developed that the firm, becoming a little overzealous, had apparently decided that the press representatives didn't have the native intelligence to question the speaker. A sheet of suggested questions was mimeographed in advance, to help out the supposedly inept press (e.g., "When Washington crossed the Delaware, whose product was the first one he saw?" . . . well, maybe the questions weren't quite that bad, but pretty near it.)

If you're out to alienate the press, just try this sure-fire approach—we guarantee success.

* * *

The folks in the phosphorus industry are not exactly communicative with each other. What Gimbel tells Macy is downright blabbermouth compared with what Westvaco, Victor and Monsanto tell each other about their operations.

When we visited the Westvaco operation at Pocatello, there were various areas we were not permitted to enter during a plant tour, but our five senses perceived certain things. We faithfully promised the resident manager, Josiah Work, that nothing would be published without the company's full approval. What he didn't know, however, was that we couldn't be trusted any further than you could throw a rock. So, here's where we let Victor and Monsanto in on some real dirt! This is it: The place is the dustiest joint we've ever been in, with the possible exception of Carborundum at Vancouver, Washington.

Now let Victor and Monsanto get their vice presidents to work on this.

* * *

During a recent plant tour we witnessed an unusually embarrassing scene. After we were ushered into a special bus a woman got aboard, but the head of the visiting party explained that this was a special group and only those visiting the plant were allowed. She didn't leave, however, and seemed rather confused by the proceedings. Our guide was becoming exasperated when a man waiting outside the bus told her to get off and come along with him, and they walked away looking highly displeased. Then, noses were counted and it was discovered that the tour's guests of honor were missing. Sure enough—there they were stalking away, highly insulted. Our guide dashed off in hot pursuit, caught up with the pair and explained his way back to the bus. It was extremely humorous to us spectators, but from the look on the face of our tour leader as he ushered the pair aboard, he'll never be the same again . . .

MILITARY CONTRACTS issued to the West

A REPORT from the Munitions Board releases the value of military procurement and construction contracts awarded by purchasing offices for the period July 1950 through December 1952. The eleven Western States were awarded $13,304,552,000. This was better than 17% of the total dollar value of contracts awarded. California, with a total of over $10,000,000, was second only to the state of New York.

FREIGHT DOCK steel aprons moved with electromagnet

THE OLD and tedious railroad job of moving freight dock steel aprons has been greatly facilitated by the application of a low amperage electromagnet mounted on an electric fork lift truck. Three-hundred-pound plates, used as runways between freight cars and docks, are being moved with greater speed and safety at Union Pacific's freight stations. The job previously required four husky men.

The electromagnet slides onto the fork of lift truck, hanging between the prongs, allowing the truck to be used for all other chores when not handling aprons. Aprons are distributed in the morning and picked up at night.

AVENUES OF ADVANCE for combustion engines

AVENUES of advance open to the combustion engine for progressive strides toward the horizon of probability in higher ranges of output and higher zones of speed with reasonable maintenance are:

1. Control of the flame front of the gas injected or otherwise introduced combustible to prevent destructive concentration of heat flow through metals.

2. Equalization of heat transfer through the main combustion chamber envelope to relieve cylinder head and piston structures of undue mechanical and thermal stresses.

3. Development of adequately matched and efficient superchargers.

4. Continued improvement of materials and lubricants.

5. Provision for controlled thermal levels throughout the geometry of the engine to stratify temperature ranges for maximum efficiency and effective cooling.

6. Utilization of economically available fuels to provide over-all economy.



A G-E PACIFIC GEAR-MOTOR DRIVES THIS STEAMING GREASE COLLECTOR 8 HOURS A DAY AT PETERSON CO., LOS ANGELES

"In Eight Years—No Trouble with our G-E Pacific Gear-motor"

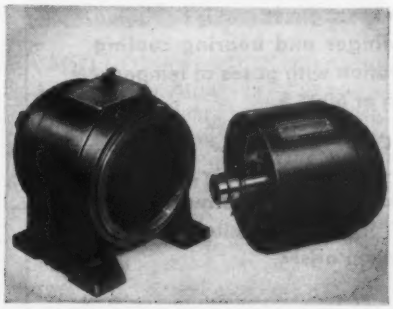
. . . reports the Peterson Manufacturing Co. of Los Angeles, makers of grease and tallow products, about the G-E Pacific Gear-motor it chose in 1945.

"Our G-E Pacific Gear-motor has been driving a grease collector every day for the past 8 years. Though it has operated constantly in an atmosphere of hot grease and steam, it's never given us any trouble at all. For our money the G-E Pacific Gear-motor is the toughest low-speed drive on the market."

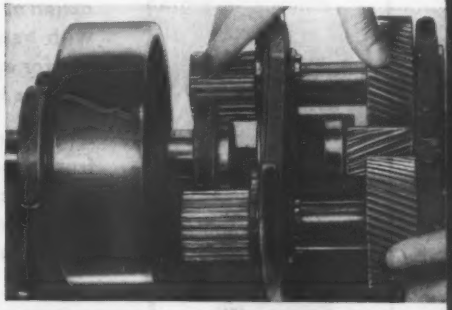
Order your G-E Pacific Gear-motor through your nearest G-E Apparatus Sales Office or your Authorized Agent or Distributor. For printed information, write to General Electric Co., Section 756-5, Schenectady 5, N. Y., for a free copy of Bulletin GEA-5787.



SIMPLE MAINTENANCE—Handy dip-stick tells you when oil in transmission needs refilling—the only maintenance that's needed.



EASY INSTALLATION—Simple, compact design makes the G-E Pacific Gear-motor as easy to install as any general-purpose motor.



LONGER LIFE—Wear on gears is greatly reduced by dual countershaft drive which divides the load at the high speed pinion.

With factories in Anaheim, Los Angeles, Oakland, Ontario, San Francisco, San Jose, Seattle, and Richland, and Sales Offices in twenty Western cities.

GENERAL ELECTRIC

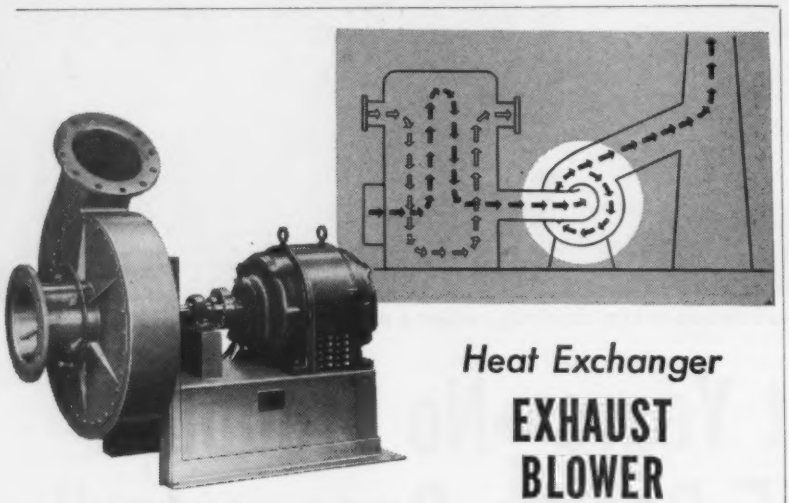
REMOVAL OF THRIPS from cane berries

THE FOLLOWING is taken from a report on studies conducted during the 1952 season in Oregon to determine effectiveness of various combinations of dry and wet methods for removing thrips from harvested black and red raspberries intended for canning or freezing.

A heavy infestation of thrips constitutes a problem to both grower and processor. If field control methods prove inadequate, the processor faces the problem of removing the insects from the berries during preparation for processing. Cleaning equipment now in use includes water washers and dry-riddle cleaners. Water washers may be shaker-washers, whirlpool washers, or modified flume-washers. Dry riddle cleaners consist of a variety of patterns of transversely or longitudinally oriented vibrating riddles.

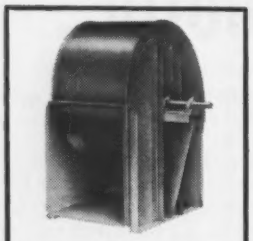
During the 1952 season, samples of black raspberries were obtained from commercial packing operations using equipment of various types. Two samples were taken and insect counts were made on these samples by the widely used oil-extraction technique. The results of this survey show that the cleaning processes now in use are erratic, and in most cases somewhat less than half the insects were removed.

As can be concluded, a more reliable cleaning method is needed. Preliminary experiments in 1951 indicated that use of a wetting agent might greatly increase the effectiveness of washing. Experiments to date have also tested the effect of detergents in removal of insects from berries. Detergents for berry-cleaning have not as yet been accepted by various health authorities, however. Wetting agents should be selected with this in mind. Household preparations should be avoided, not only from the standpoint of lack of knowledge of their composition, but because the perfuming agents used in these products may influence the fruit flavor.

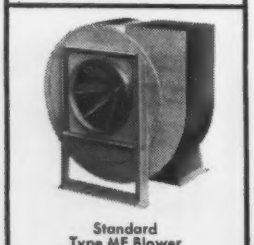


Heat Exchanger

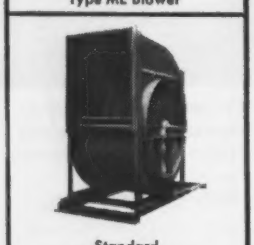
EXHAUST BLOWER



Standard Type FC Blower



Standard Type ME Blower



Standard Type BC Blower

This unit was especially designed to handle spent gases from a recently developed heat exchanger. It creates nearly 2 lbs. of vacuum in order to move the gases through the torturous passages of the exchanger. It has a uniquely designed valve on the intake to permit positive adjustments of the flow without disturbing the pressure balance. It is built of alloy steel to withstand the corrosive action of the spent gases and is equipped with heat slinger and bearing cooling fan for operation with gases at temperatures as high of 600° F.

Master Fan Corp. "know-how" is gained from nearly a third of a century of building standard and special blowers. This "know-how" is always available to you when a problem arises.

MASTER FAN CORP.

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WESTINGHOUSE plants win safety awards

NATIONAL Safety Council gives 1952 awards to four Westinghouse Manufacturing and Repair Division plants for their records in accident prevention. Plants in Sunnyvale, Seattle, Portland and Salt Lake City received awards based on accumulated accident-free hours of operation.

Sunnyvale had a monthly accident frequency of 1.7 (based on number of disabling accidents per million man-hours worked) as compared with a national average of 4.04 for the electrical equipment industry.

At the Seattle plant 67 employees had their fourth no-accident year in a row to win a "Certificate of Commendation." This award is given to plants working between 200,000 and 1,000,000 man-hours a year sans accident.

NEW ALUMINUM alloy promising for sucker rods

TESTS under way in wells in the Permian Basin for periods up to eight months indicate that a new aluminum alloy may have been discovered, capable of greatly extending the life of oil-well sucker rods.

Aluminum sucker rods have been under study by Reynolds Metals Co. for some time because their light weight is a valuable feature when pumping deep wells. With the present trend toward deeper wells this factor becomes more important every day.

ATOMIC ENERGY as an industry

THE FOLLOWING are remarks from a speech given before the Wings Club by Captain J. T. Hayward, Chief, Weapons Research Branch, U. S. Atomic Energy Commission.

The AEC's peacetime program rested on the all too narrow base of a single raw material—uranium. Plans had to be laid to stimulate exploration and production in the Colorado Plateau, the only place then known in our country to contain ore that could be recovered without prohibitive cost. Research had to be instituted to improve the mining processes.

A good deal of attention was given to rehabilitating the Los Alamos Scientific Laboratory for weapon development and experimentation and planning for industrial-type production of proved models. A large area of Idaho desert was selected and, after considerable study of available locations, was chosen as the site of the National Reactor Testing Station.

Last year Congress authorized a $3,500,000,000 plant expansion program. The largest project is a $1,200,000,000 gaseous diffusion project now under way near Portsmouth in southern Ohio. Major plant additions were assigned to Hanford, Paducah, Oak Ridge, and Savannah River.

Technicians working in the lead-shielded cubicles of huge cranes use periscopes to handle the fission products that seethe 50 feet below them. Tiny utensils used in microchemistry, huge concrete canyons, diesel engines and a classification yard are all found at Hanford.

Assembly line usage

Private industry is beginning to use radioisotopes in appreciable quantities on the assembly line. The rubber and plastics industries are using thickness gauges to save thousands of dollars annually in raw materials, reducing the spoilage of sheet due to uneven thickness. Cobalt units are employed to detect flaws in boiler plate, welds and castings, while the petroleum industry is using tracer atoms for tagging oil interfaces in pipelines.

The AEC has been generating more than 100 kw. of power at its Experimental Breeder Reactor in Idaho since the turbine was first turned with steam made from heat extracted from an atomic furnace.

In order for a dual purpose reactor to make plutonium and get heat to generate power as a by-product, the Government would have to make a long-term commitment—say 25 years—so that the vast capital needed can be induced to invest in a private power project. However, some leaders believe this basis unsound and prefer to await development of reactors efficient enough to stand alone as power producers.

CALIFORNIA OIL is going fast

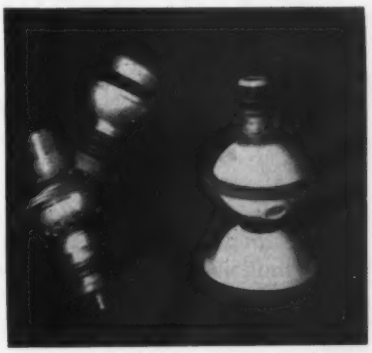
"CALIFORNIA is using up its oil reserves at the fastest rate of any major oil production area in the world," said T. S. Petersen, president of Standard Oil Co. of California. Speaking before the Bond Club of Los Angeles, Petersen said that during 1952 California used up 9.3% of its reserves of approximately 3,850,000,000 barrels, while the rest of the United States consumed only 8%, and the remainder of the free world withdrew only 2%. He added that it was unfortunate that California, alone among the bigger oil states, does not have a conservation law, and because of this lack of official control, many millions of barrels of petroleum have been, up to the present, permanently lost in the ground.

PROPERTIES of metals at elevated temperatures

AN IMPRESSIVE amount of scientific and engineering effort has been expended in the field of highly heated metals but the work is yet far from finished. The merit of an alloy must still be evaluated by its performance in service. These were the remarks of Dr. V. N. Krivobok, head of the Stainless Steel Section of the Development and Research Division of the International Nickel Co., as reported at the April meeting of the Puget Sound Chapter of the American Society for Metals.

High temperature alloys can be generally classified as iron, nickel, or cobalt base. With the exception of iron base alloys, most of the materials are precipitation hardening. Alloy additions are made to strengthen by: (1) adding strength to the matrix and changing the solubility of hardening elements; (2) influencing the size and distribution of the precipitant; (3) controlling the grain size.

AIR-TRAP PULSATOR new step in pneumatic development

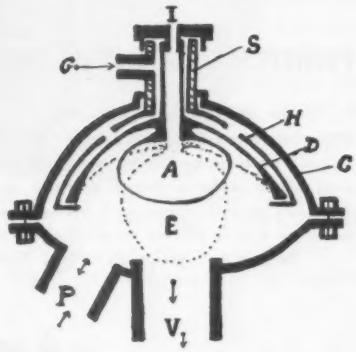


A METHOD for controlling the actuation of a pulsating diaphragm by a gas-filled, resilient bag attachment whose inside pressure can be set from the outside during operation has been devised by Dr. Ernest Stossel of San Francisco.

The new device, for which basic patent claims have recently been allowed, can be used as differential gas-pressure valves, vacuum-breakers, resonant valves, air-vibrators, gas pulsators, oscillators and as pressure control valves.

One of its basically new and practical features is the simple way in which a continuous air or gas flow is forced to convert itself into a pulsating one, due to the original diaphragm design with a resilient gas-bag attachment or gas trap. Changes in the volume and pressure of the confined gas or air control the performance of the diaphragm, the slightest change in the pressure inside the "air-trap" causing great variations in the pulsations of the flow line.

The immediate application is seen in the air cleaner field as an attachment pulsator, but it holds promise of use in vacuum filters, vibrating screens and other fields where pneumatically controlled vibration is required.



A. Air-trap (closing position)
E. Air-trap (opening position)
D. Diaphragm
H. Housing (perforated enclosure)
I. Inside pressure control
S. Screw control
G. Gas entrance
P. Pulsating air (air-flow P ——> V)
V. Vacuum connection

WESTERN GLASS-makers really shine

WEST COAST glass manufacturers' sales of containers are estimated to have passed the $50,000,000 mark in 1952, says Victor C. Swicker, a glass technologist of Alexander H. Kerr & Co., Inc., Los Angeles. Addressing the American Chemical Society, he maintained that at least 90% of the glass produced on the coast is manufactured in California, with production about evenly divided between Los Angeles and San Francisco Bay areas.

Although both fiber and flat glass are made in substantial quantities, by far the bulk of glass is utilized by the area's 12 major factories in the container industry.

The glass factory located in Seattle is about 1,500 miles from the nearest source of a good quality supply of sand, with attendant high freight rates. San Francisco factories have a choice of using high silica sand from Lake Meade, or 9% alumina sand from nearby Monterey peninsula. The problem, therefore, resolves itself into the relative advantages or disadvantages connected with manufacturing a high alumina-containing glass at a low cost, but with problems specific to this unusual composition, using high silica sand and conforming to eastern practices, or, arriving at a compromise using both kinds of sand.

how NORGREN micro-fog



gives more efficient lubrication of spindles, gears, bearings, small air-operated devices.

Only Norgren Micro-Fog [illegible] all these features:

Complete Visibility and Control of Oil Feed . . . no guess work.

Oil Feed Controlled by Air . . . gives very uniform rate of oil feed.

Constant Oil Level . . . rate of oil feed not affected by oil supply.

PIONEER AND LEADER IN OIL-FOG LUBRICATION FOR 25 YEARS

The latest Norgren development is a new type Micro-Fog Lubricator, incorporating the above features, designed to give reliable uniform lubrication of one or more high-speed spindles, bearings, gears, cams and small air-operated devices. It produces an extremely fine and uniform air-borne micro-fog at low air flow; transmits it over greater distances than previously possible; distributes it evenly through multiple outlets; provides exact control and a uniform rate of oil feed under all operating conditions.

Be sure the right people in your plant know the facts about Norgren Micro-Fog.

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NORGREN SPECIALIZED LUBRICATION ENGINEERS IN PRINCIPAL CITIES

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In Colorful Colorado
Valves • Filters • Regulators • Lubricators • Hose Assemblies

FOREST PRODUCTS Laboratory for California

A WELCOME addition to the School of Forestry facilities at the University of California will be a new Forest Products Laboratory located in Richmond, California. Proposed in 1942, and subsequently supported by the California lumber industry, the laboratory will be devoted to various aspects of engineering research.

Laboratory buildings will comprise roughly 25,000 sq. ft. of floor space, all on one level, and will be located on a 4½-acre tract of university-owned land. A main laboratory will contain six small research units for specialized basic work, together with necessary offices for administration. Another wing of the same building will be devoted to dry kiln equipment, woodworking machinery, and space for development of pilot plants and other general research work.

A smaller building will contain a circular sawmill plus storage space for lumber. These buildings will be equipped with testing machines, conditioning rooms with controlled temperature and humidity, wood preservation retorts, facilities for applying wood finishes, glueing, presses, and defibrators. Also included will be necessary standard laboratory equipment for both physical and chemical study of forest products.

It is expected that this laboratory will be built, equipped and ready for use by the summer of 1954.

STRONGER STEEL for safer planes

ENGINEERS at Lockheed Aircraft Corp. have perfected heat treating and processing procedures which make it possible to effectively use standard, deep-hardening 4340 steel with a psi. tensile range of 260,000-280,000. Formerly utilized at 180,000-200,000 psi., 4340 steel now achieves maximum efficiency at the new higher strength level.

Vital aircraft parts, such as cargo and passenger plane landing gear, are now being made stronger yet lighter through the use of 40 per cent higher psi. steel. Increasing the metal's strength, coupled with a 23 per cent weight saving over the conventional 200,000 psi. limits, makes possible greater payload for commercial transports.



"You people make lots of sheet steel— *where's it all going?"*

Yes Mr. Buyer, our industry *is* turning out lots of sheet steel. But, now, at just the time when civilian needs for sheets are greater than ever, defense needs are great, too. So, a lot of sheet steel that normally would go into civilian channels must be used instead to meet defense requirements.

Columbia-Geneva is doing its best to help overcome the shortage of sheets, but still cannot begin to fill all orders. It is hoped, though, that it will not be too long before we can supply a much greater tonnage to our civilian customers.

In the meantime, please remember that—no matter what the supply situation—Columbia-Geneva sheets remain unchanged in their high quality. From raw ore to finished product, the quality of Columbia-Geneva steel sheets is rigidly controlled by metallurgists and other trained technical personnel using the most advanced testing methods; from start to finish, Columbia-Geneva sheets are produced in the most modern mills in the West; at every step of the way they are designed to meet your most exacting specifications.

That's why sheet steel from Columbia-Geneva is always your best buy. And we hope that as more becomes available, you'll continue to look first to Columbia-Geneva, the West's largest steel producer.

U·S·S Steel Sheets

COLUMBIA-GENEVA STEEL

Division United States Steel Corporation, San Francisco

UNITED STATES STEEL

BOOKS FOR INDUSTRY

BLUE PRINT READING know your welding symbols

All symbols and other data have been revised and brought up to latest standards in this new fourth edition of "Simple Blue Print Reading With Special Reference to Welding and Welding Symbols," an enlarged edition of a book for welders and others engaged in fabrication of machinery. In it a simplified approach is made to mastering the reading of blue prints. Subjects such as perspective drawing, isometric drawing, sight projection, center plane lines, dimensions, scales, etc., are explained. Copies available for $1.00 each from *The Lincoln Electric Co.*, Cleveland 17, Ohio.

WEIGHTS AND MEASURES for the layman

The need for concise legal information in lay terms regarding court decisions involving weights and measures cases has been met with publication of Bureau of Standards Circular 540. This book prepared by Kathryn M. Schwarz and Malcolm W. Jensen is called "Weights and Measures Case Reference Book."

This work permits your quick location of any decisions concerning a given phase of weights and measures law. All decisions have been briefed to include only material important to weights and measures officials and other interested lay readers. An indexed reference to reported decisions of federal and state courts will guide readers to those legal principles which they wish to explore.

Cost of this 97-page buckram-bound book is $1.25. Order it from *Government Printing Office*, Washington 25, D. C.

THE UNION LIST of periodicals

A new edition of The Union List of Periodicals in the San Francisco Bay Region, a valuable aid for your business, marketing and technical research, has just been published by *San Francisco Bay Region Chapter of Special Libraries Association.*

The 120-page paper-bound book lists all technical and business journals, newspapers, trade union publications, and major employee and company magazines which are maintained on file in 42 business, technical and public libraries in this area.

Copies may be ordered from Miss Marie Koutecky, Standard Oil Co. of Calif. Library, Box 3495, San Francisco 20, Calif. Price is $5.18 including San Francisco tax. Checks should be made payable to "Special Libraries Association."

HOW TO RAISE CASH and influence bankers

The rise in prime loan rates to 3.25% finds alert businessmen searching for new sources of financing. The range of possibilities is unexpectedly broad, as is revealed in a new study, "How To Raise Cash and Influence Bankers," by Arthur H. Richland. The author analyzes some 15 different sources of raising operating money today from his broad background as an underwriter, borrower and broker.

Richland starts by taking a hard look at business to see why it needs cash and what can be accomplished with additional cash. Such self analysis puts the businessman in a position to look the prospective lender in the eye, and talk turkey, whether he is talking to his own bank, an insurance company, a pension fund, a foundation, finance company or risk capital syndicate.

The study shows what each of these groups will do on inventory loans, equipment loans, accounts receivable, unsecured credit, plant and real estate.

This 126-page book is available in limited numbers from the publishers, *Business Reports, Inc.*, 1 Main St., Roslyn, Long Island, N. Y. The price is $12.50 per copy.

WELDING AND SOLDERING aluminum and its alloys

Any engineer familiar with the welding of the older metals will find all he needs to know about welding, brazing and soldering aluminum in the new 186-page process manual, "Welding Aluminum," just published by *Reynolds Metals Co.*

This new edition of the 1946 manual contains material on 34 processes suitable for welding, brazing and soldering aluminum and its alloys. To obtain this manual, send $1.00 with your request to Desk PR, Reynolds Metals Co., 2500 S. Third St., Louisville 1, Kentucky.

URANIUM ORE samplers improve practices

DURING recent years, as uranium production has increased, there have been many advances made toward betterment of sampling procedures to provide representative pulps that would not slant sampling results either in favor of the ore buyer or the ore producer, and would at the same time improve efficiency and economy of operation.

Considerable progress in sampling procedures has been announced by Division of Raw Materials, U. S. Atomic Energy Commission. Changes in sampling procedures reported by the Climax Uranium Co., Grand Junction, Colo., include making a 10% primary cut in the lots of ore.

The U. S. Vanadium Co. reports that it now has in operation at Rifle, Colo., a primary sample cutter so arranged as to take a 20% sample at regular intervals. At the Uravan, Colo., plant of U. S. Vanadium, it is reported that the chain bucket elevator has been eliminated and a 60-in. Snyder primary sampler cutter installed. This cutter has 36 x 14-in. crushing rolls and a belt feeder conveyor for conveying the primary cut to a secondary Snyder sampler.

At the Thompsons, Utah, plant design and layout drawings for the installation of 18 x 24-in. rolls, ore feeders and samplers has been completed. The use of a cross-flight chain and bucket sampler is contemplated in place of the chain and bucket elevator sampler. Also, conveyors will be enlarged to eliminate spillage.

At Durango, Colo., the primary crushers have been extended and the cross-flight conveyor removed and replaced with a 30-in. Snyder sampler to give 20% cuts of the primary crusher discharge.

The AEC is continuing extensive testing of the accuracy of sampling and analytical determinations made by the various ore purchasing stations to assure that ore producers are being paid accurate prices for shipments.

EXECUTIVES' secretaries hold convention

EAST BAY Chapter of Executives' Secretaries, Inc., recently held a national convention in Berkeley which included a tour to Hawaii, outrigger canoe rides at Waikiki Beach, and a special trip arranged by the Honolulu Chamber of Commerce.

Carrying hot steel for THREE YEARS

and these Hard-Faced rollers are still in use



Three years ago, some cast iron cone rollers for this cooling bed were hard-faced with HAYNES alloy No. 92. Today, they are still carrying hot steel bars despite the continual impact, abrasion, and heat to which they have been subjected. Cast steel rollers on the same line, which were hard-faced with HAYNES STELLITE alloy No. 6, have also shown exceptional service — although they have not yet been in use as long as the cast iron ones.

HAYNES alloy No. 92, an iron-base alloy recommended for the cast iron parts, is exceptionally easy to apply by oxy-acetylene welding. It has a very low melting point and the molten alloy is quite fluid. Deposits have a Rockwell C hardness of 62-67 and excellent wear resistance.

HAYNES STELLITE alloy No. 6, the cobalt-base alloy used for hard-facing the cast steel parts, can be applied by metallic arc welding. Deposits are machinable and have excellent resistance to abrasion and heat.

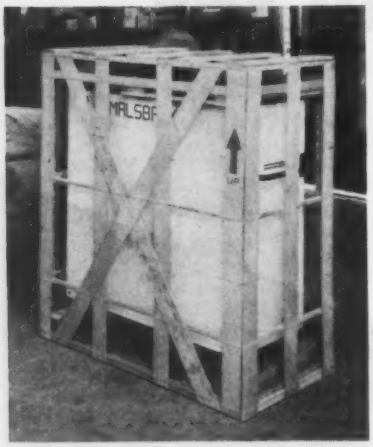
For information on how to hard-face cast iron and cast steel parts, and on the alloys recommended for each job, write for a copy of "HAYNES Hard-Facing Manual."

HAYNES TRADE-MARK *alloys*

"Haynes" and "Haynes Stellite" are trade-marks of Union Carbide and Carbon Corporation.

Haynes Stellite Company
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Chicago — Cleveland — Detroit — Houston
Los Angeles — New York — San Francisco — Tulsa

WIREBOUND CRATES halt damage reports



MALSBARY Manufacturing Co. of Oakland, producers of heavy steam cleaning equipment, have had particular trouble shipping a large model steam cleaner. The 540-lb. unit, sold to service stations and garages, was originally shipped in a nailed 130-lb. crate, and was the subject of numerous "damaged on arrival" complaints from wholesalers and users.

California Barrel Company, Ltd., manufacturers of wirebound containers, designed and built a lightweight wirebound crate which has virtually eliminated complaints from receivers, as well as reducing shipping weight by 40 lbs.

The new wirebound crate is of open mat design and consists of a base plate, hold-down piece, top plate, and wrap-around mat. Packaging, formerly requiring 45 min., now is completed in 8 min. or less.

BIG SKOOKUM— one hundred years of logging

AN INTERESTING history of logging in Mason County, Washington, is told by Dave James of Simpson Logging Company. A colorful and unusually well illustrated narrative is wound around the waters of Hammersley Inlet, an arm of Puget Sound. The story well illustrates the evolution of logging methods and equipment since the 1850's, with many interesting sidelights, personalities, and living conditions discussed. Logging by horse, donkey engine, and high lead are shown as well as the invasion of the woods by mechanized loaders, tractors, and railroads.

ATOMIC ENERGY Commission awards 37 research contracts

ONE YEAR contracts were let as part of the AEC's continuing policy of assisting and fostering private research and development to encourage maximum scientific progress in the fields related to atomic energy. All the contracts, awarded to universities and private research institutions, are for basic rather than applied research.

Generally the institutions participate with the AEC in defraying the costs of the research when it is of mutual interest. Among the recipients of contracts awarded since January 1 are: Oregon State College, University of Southern California, University of Utah and Washington University.

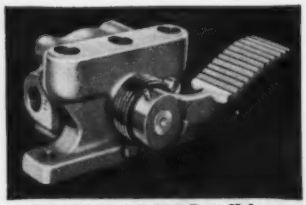
APPLICATION of plastics in Convair-Liners

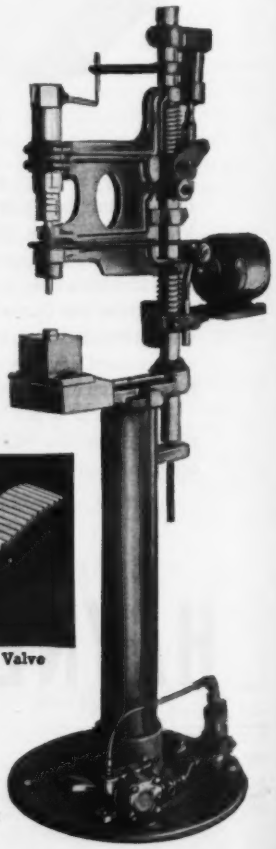
PLASTIC materials are being used extensively in commercial aircraft construction, primarily because of their light weight and very durable qualities. New plastic materials have helped engineers to keep airplane weight-per-

Airflex
Pneumatic Riveters
Controlled by NOPAK Model "R" Foot Valve

A touch of the foot pedal on the NOPAK model R Foot Valve . . . which is coupled to a special timing valve . . . initiates an automatic riveting sequence on this and other models of the Airflex Riveter made by the Lemert Engineering Co., Plymouth, Ind. Operator fatigue is minimized and production is increased by this successful application and precision control of air power.

NOPAK 3- and 4-Way Foot Operating Valves are used in many ways on many different types of equipment for the precision control of air power applied to various machine movements. Ask your NOPAK representative to show you other examples in the NOPAK Application Manual.


NOPAK Model "R" Foot Valve



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The Willard Engineering Co.
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Los Angeles 15, Calif.

E. C. Griffin Company
824½ First Ave. South
Seattle 4, Washington

horsepower low while also having a favorable effect on maintenance costs.

The 44-passenger Convair-Liner 340, now in production for many airlines, includes numerous parts and finishings made of plastic. The total weight of plastic materials in each transport is approximately 1,000 lb. Plastics constitute 3.5% of the plane's weight. Parts and components covering the internal structure include such items as seats, baggage racks, flashlight holders, lavatories, partitions, stowage bins, and instrument panels.

MANUFACTURING forecast — California leveling off

A FLATTENING out in both business and employment at the currently high level seems to be in progress, according to the second quarterly poll of California manufacturers by the California Manufacturers Association.

Three months ago 43% of the manufacturers polled expected to book a larger volume of business in the third quarter of 1953 than in the corresponding period a year ago; now the percentage has dropped to 33%.

The polls are conducted by Lon Hughes, public relations counsel for CMA and former newspaper financial editor. Although they do not indicate actual comparative volume of business involved, they do report by number of manufacturers.

Figures are as follows:

1. How will the dollar sales (billings) of your company in the third quarter of 1953 compare with the same period in 1952?

Higher	40%
Lower	19%
About the same	41%

2. How will the volume of incoming orders (dollar value) expected by your company in the third quarter compare with 1952?

Higher	33%
Lower	23%
About the same	44%

3. How will the average number of employees on your payroll for the third quarter of 1953 compare with 1952?

Higher	26%
Lower	16%
About the same	58%

4. How does your company's inventory of finished products (dollar value) compare with a year ago?

Higher	27%
Lower	23%
About the same	50%

5. What change in your company's inventory in the last three months?

Reduced	27%
Increased	20%
Relatively unchanged	53%





One of thousands of uses for high BEAN pressure

PUMPS

This particular BEAN Pump operates at 2000 pounds pressure, delivering only 11 gallons of water per minute. The high-pressure water jets remove the scale instantly and the de-scaled forging is immediately formed in the dies. Two BEAN Pumps handle 3500 projectiles per day.

Your Plant probably doesn't make projectile forgings . . . but it most likely *does* have an operation that could be speeded or simplified by a dependable BEAN Industrial Pump. High pressure works wonders!

Here are more examples:

- **Removing zinc chromate from aircraft**
- **Testing of steel pipe, valves, chain, tanks**
- **Closing of tire retreading molds**
- **Fruit, vegetable, milk and oil homogenizing**
- **Drilling mud circulation for oil well drills**
- **Application of concrete curing compounds**

BEAN High-Pressure Industrial Pumps are designed for rugged service and efficient operation by the world's leading pump manufacturing concern. A BEAN Sales Engineer knows the model that will do your job best.

Write for catalog and for facts dealing with your particular high pressure pumping problem.

fmc TRADE MARK

BEAN

FOOD MACHINERY AND CHEMICAL CORPORATION
John Bean Division, San Jose 1, California

Gentlemen: Please send me your catalog on BEAN Industrial Pumps.

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Principal Product_____

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City_____ Zone____ State_____

HELPFUL LITERATURE

for the plant operator who wants to keep informed

Use rip-out post-card for your free copies

1

Doors, doors and more doors

An up-to-date brochure of *Kinnear Manufacturing Co.'s* many and varied doors is now available to tell you all about these necessary items. A run-down of book's index shows following types thoroughly covered: steel rolling service doors, "Akbar" fire doors and shutters, bifold, Rol-top sectional overhead doors, steel rolling grilles, special doors and counter closures. 75

2

Micro ball bearings described

A new general catalog, still ink-fresh, describes, with technical data, "Micro" ball bearings. Its 28 pages include illustrations, load chart, interchangeability table, etc. *New Hampshire Ball Bearings, Inc.*

3

"Gears and Gear Products"

This is title of a new, informative brochure just published by *Advance Gear & Machine Corp.* It carries a brief description of each type of gear cutting method, and explains how certain types of gears are used.

4

"Sheet and Plate"—aluminum information

Here is a beautiful little booklet, content of which is general information about Kaiser aluminum sheet and plate—production, qualities, alloys, applications, fabrication and finishing methods. Engineering tables include complete detailed listing of properties. Publication presents, in concise form, essential facts which will be helpful in proper selection and use of aluminum sheet and plate alloys. *Kaiser Aluminum & Chemical Sales, Inc.*

5

Fork truck training program spurs efficiency and safety

A new method of training fork lift operators in all phases of their trade—operation, maintenance and safety—is



developed by *Yale & Towne Manufacturing Co.* Course is a valuable contribution to materials handling know-how, and will be equally useful in teaching beginners and in refreshing experienced operators.

6

Tolerance tables illustrated

A simplified, easy-to-follow section on tolerances is featured in a comprehensive 28-page booklet, entitled "Aluminum Extruded Products," released by *Revere Copper and Brass, Inc.* By use of diagrams, Revere illustrates seemingly complex standard tolerances of aluminum extruded shapes and presents them in five pages of readable tables for purchasing, engineering and manufacturing departments.

7

New diesel engine bulletin

A four-page folder just released by *The National Supply Co.* engine division, describes Lister model FR1, FR2, and FR3, four-cycle stationary diesel engines. Bulletin gives engine dimensions, weights and technical data on these 1,500 and 1,800 rpm., 8-bhp. to 27-bhp., one- to three-cylinder units. 5204

8

"Celite—The Story of Diatomite"

This is a new 28-page brochure just published by *Johns-Manville,* designed for both laymen and technical men. Using photographs and drawings as well as text, it traces development of diatomite from arrival of the diatom during the Miocene Era to its current benefits. Story is concluded with a brief prediction of new things that may be expected.

9

Motor-generator reference booklet released

A motor and generator reference booklet, to assist in selection of motive power to handle most industrial applications, comes from *Allis-Chalmers Manufacturing Co.* This 50-page pamphlet is reprinted from 1952 edition of Lincoln's Industrial-Commercial Electrical Reference published by Electrical Modernization Bureau, Inc. 51R7933

10

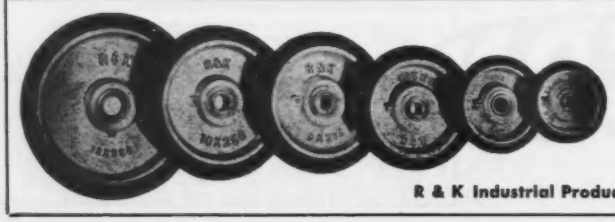
"Marvic Machinists' Operating Manual"

Prepared in handy pocket-size form, this 38-page booklet describes new approach to problem of holding cutting tools for lathe operations. Sections of booklet include: history of this system, construction of multiple tool block, operation, mounting block on lathe, tool holders, and advantages of system. Several pages of useful data and tables are included. *Marvic, Inc.*

11

Industrial power truck proof package

Case history folders telling how leading companies in America are using industrial power trucks to great advantage are now available to industry in package form from *Lewis-Shepard, Inc.* Blue chip companies in food, motor freight, warehouse, paper, electrical equipment industries and others are covered in photo-story style. Fully



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illustrated with action photographs, these folders should be of value to every user or potential user of materials handling equipment.

12

Bulletin on glass mold cleaning for time and labor saving

How to perform cleaning operations on glass molds without destroying close tolerances is discussed in a new bulletin on wet blasting just published by *American Wheelabrator & Equipment Corp.* Bulletin shows how wet blasting is done both during manufacture of molds and during reconditioning maintenance to make important savings in both time and labor. 53

13

Sealing handbook

Franklin C. Wolfe Co., Inc., specialist in sealing design, has recently completed, for general distribution, a new brochure briefly describing firm's standard products and services for sealing bolts, studs, rivets, AN fittings, access doors, hatch covers, flanges, electric terminals, etc.

14

"Powdered metal parts for industry"

Today, powder metallurgy processes are making hundreds of different parts for industry. Many of your own parts problems may be solved to better advantage by one of these processes. Kwikset engineers offer to show you how, and, as an advance hint, will send you a most attractive brochure mentioning many advantages in which you will be interested. *Kwikset Locks, Inc.*

15

Dope on Yak sit-down truck

Specifications, design and construction features of new Yak 4000-lb. capacity sit-down truck are described in a 6-page, two-color bulletin, now available from *Mercury Manufacturing Co.* Construction improvements include better fork elevation, travel and hoist speeds, turning radius, weight and convenience of controls, all described in detail.

16

Unique new stainless alloy products for oil and chemical industries

New types of stainless alloy products with applications in oil, chemical and petro-chemical industries are described in a booklet now available from *Solar Aircraft Co.* Firm's research and production experience in making aircraft components—such as "hot parts" for jet engines—is of particular value to oil and chemical firms, since these industries are faced with complex problems of high temperatures and corrosion.

17

Automatic switch system bulletin now available

A newly published bulletin, describing engineering features of Lamson Airtube switch system, contains a detailed analysis of this fully automatic pneumatic tube system for transporting messages, punch cards, small tools, or other small articles from one point to another. Among other system advantages, bulletin points out importance of an airtube system in reducing non-productive time. *Lamson Corp.* A-101-52

18

Doors with a magic touch

The Stanley Works issues a revised catalog covering applications of Stanley magic door controls to automatic operation of doors in business and industry. Controls described include: push button, pull cord, floor switch, and hardware or photo-electric controls. Applications include entrance and service doors and a wide range of industrial installations.



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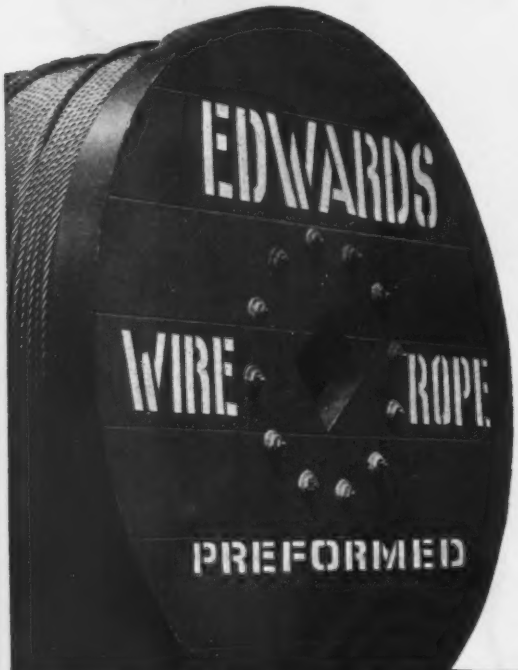
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19

Industrial survey of San Benito County

This California chamber of commerce has really outdone itself to present county's attributes in a concise, attractive, down-to-earth manner. It starts out with an amusing cartograph of San Benito County, and following pastel pages cover these points: General information; utilities; transportation; industrial sites, housing, tax rates, health facilities; labor supply; climate; resources and industries; educational and church facilities, and recreation. *San Benito County Chamber of Commerce.*

20

New R/M V-belt buying guide

A new fractional horsepower V-belt catalog for use in servicing light duty applications comes from *Raybestos-Manhattan, Inc.* Belts are listed according to industry-standard numbering system. Various type machines are listed together alphabetically by company or trade names for convenience in determining proper belt.

21

War declared on electrical waste

The Champion Lamp Works presents a complete file of working data for applying its planned cleaning program and its group replacement plan for both fluorescent and incandescent lamps. Purpose behind this idea is to provide an engineered, accurate schedule for keeping your lighting installations at high, profitable intensity.

22

Handbook of industrial power distribution ideas

This 28-page catalog gives illustrations, diagrams, charts and systematic drawings showing circuit arrangements for modernized power distribution within your plant. It discusses 12 ideas for maintaining power continuity, reducing installation and operating costs, safeguarding personnel and equipment, and for planning your electrical distribution system quickly and easily. *General Electric Co.*

23

All about cold finished carbon steel bars

An 8-page bulletin from *Joseph T. Ryerson & Son, Inc.*, describes finishing processes used in producing cold finished carbon steel bars and their effect on mechanical properties and machinability. Bulletin also discusses major characteristics and relative cost of a number of different analyses including Ledloy and their suitability for carburizing or direct hardening.

24

Indicating flow meter manual is offered

A 24-page illustrated manual describing application, installation, and construction of model A-286, type H indicating flow meter is released by *Meriam Instrument Co.* Principles of orifice metering are explained, and orifice flanges recommended for use with this instrument are illustrated. Proper procedure for installation in liquid, steam and gas lines is detailed in line drawings.

25

Reference on roller bearings reorganized for easy consulting

Edited and revised from a former bulletin, this catalog has a new spherical roller bearing width tolerance chart and more complete thread, locknut and lockwasher data. A revised interchangeability chart and additional special bearing pictures have been reorganized for easier reference particularly where adapter type assemblies are concerned. *The Torrington Co.* 200-C

26

Learn about electronic facilities

A new booklet, published by *The Garrett Corp.*, covers available facilities and activities of AiResearch Mfg. Co. Newly compiled, it gives a detailed account of firm's electronics group—in laboratory and on production line. More than 60 pictures complete this 16-page booklet. 4-0-1

27

Rugged construction of two-cycle engines described

A new three-color, 16-page bulletin describes construction, operation and application of Nordberg two-cycle dual-fuel engines. Design features are discussed including descriptive data on pilot oil injection system, hydraulically actuated gas valves, etc. Bulletin is well illustrated with typical engine installation views. Operating advantages are listed. *Nordberg Manufacturing Co.* 202

28

Industrial ovens featured in print

A folder from *Baron Industries of Calif.* shows standard ovens and lists outstanding features plus a back-page mention of firm's ovens for special applications.

29

Data on primary element transmitters

The Swartwout Co., manufacturer of process control and power plant equipment, offers a new bulletin on type P2T pressure primary element



Loading prefab metal sections at Bargar Metal Fabricating Company, Cleveland.

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MU-81

transmitters for use with company's autronic controlling and recording system. These transmitters are described in detail complete with principles of operation. Technical data such as pressure ranges and span are also included. A-708

30

Info on riveted chain

Improved Baldwin assembly riveted roller chain is described in detail in a new bulletin distributed by *Baldwin-Duckworth,* division of *Chain Belt Co.* One of the book's highlights is a graphic section on how this chain is made up—not cut up—to any length. Assembly diagrams and charts for all size chains are presented as well as list prices and boxed assembly specifications. 52-2

31

Germanium diodes charted

Here is a folder that describes, fully, characteristics and advantages of a new line of Germanium diodes now being produced by *International Rectifier Corp.* A section on features, specifications, cross sectional view and dope on special purpose types give you a good run-down on situation. Any standard units listed may be shipped from stock. GD-1

32

Electrolizing—process and applications

A new, 16-page booklet on electrolizing describes process and its results and includes numerous case histories. Publication lists applications in many industries in which electrolized machine parts and cutting tools have had their useful lives increased 200 to 800%. *The Electrolizing Corp.*

33

High speed heating furnaces in print

Bulletin SC-162 points up numerous advantages of high thermal head heating, with gas or oil, for press forging, upsetting, extruding, and stress relieving of ferrous and non-ferrous metals. Basic furnace designs and burner arrangements are described in conjunction with demands of overall or selective heating for semi-automatic or fully automatic production. *Surface Combustion Corp.*

34

Punch press line in print

A new 8-page, three-color brochure on Multi-Max line of punch presses is now available which contains specifications on 24, 36, 48 and 60-in. ram

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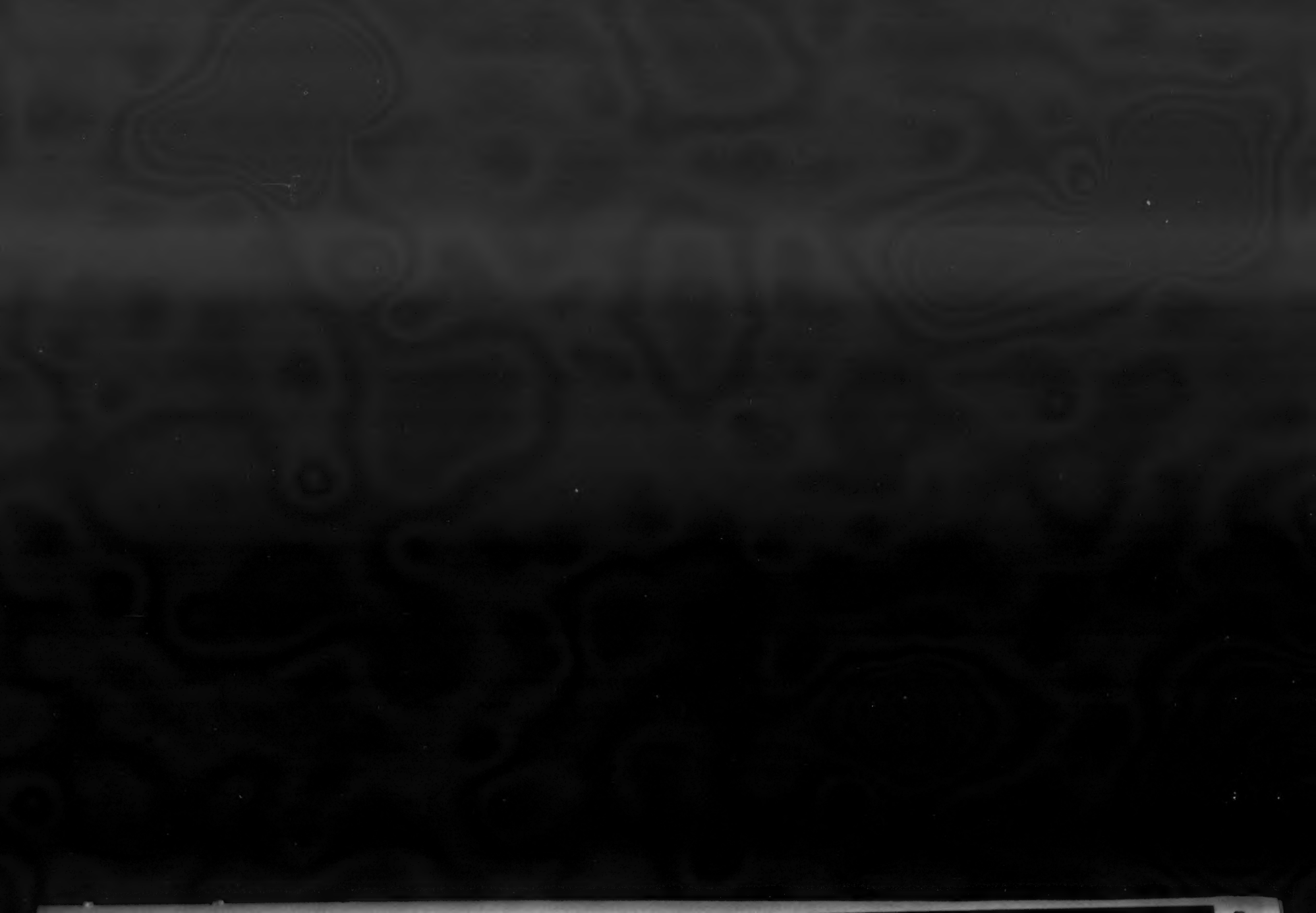
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size punch presses. This non-technical publication also gives complete information on new construction features, including a clutch equilibrator. *Diamond Machine Tool Co.*

35

Tygorust primer and how to use it

An illustrated fact sheet on this vinyl primer for wet or dry rusted steel, wood or concrete is available from *Herco Products*, representatives of *U. S. Stoneware Co.* Applications and methods for best utilization of this fast drying, rust inhibitive base for any type of finish, are explained on release. Product is suggested for use on structural steel, walls, tank exteriors, piping, pumps, etc. Areas to be coated can be brushed, sprayed or dipped, drying in a few minutes.

36

Piece describes portable belt conveyor

A new four-page illustrated folder showing applications and features of Rapistan Stevedore, Jr. portable belt conveyor is now out complete with photos and descriptions of unit's typical uses and features. Specifications are presented in clear, easy-to-read chart and table form. *The Rapids-Standard Co., Inc.*

37

Maintenance information—cartoon style

Caterpillar Tractor Co. offers another in a series of cartoon-type instruction booklets about its equipment. Latest publication is Maintenance Guide that illustrates proper operation and care required for Caterpillar's four large V-type engines—D397, D386, D375 and D364.

38

Literature on aluminum gravity conveyor

A new single-page bulletin with photos, specifications and prices of Rapistan aluminum frame-steel wheel gravity conveyor is published by *The Rapids-Standard Co., Inc.* This two-color piece has charts and drawings of new conveyor showing load capacities, weight, and construction features of complete range of sizes available in straight and curve sections.

39

Authorized tape sealing

Current shipping regulations on sealing and reinforcing packages with "Scotch" brand pressure-sensitive tapes are presented in a 6-page folder. It contains 13 illustrations showing typical sealing and reinforcing tasks as authorized by Uniform Freight

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Classification, Railway Express Agency, U. S. Post Office Department, American Trucking Association, and Export Underwriters. *Minnesota Mining and Manufacturing Co.*

40

Folder covers industrial castings

Meehanite castings for industry are described in a new 8-page folder published by *American Brake Shoe Co.* Booklet describes characteristics of material, lists properties, and carries engineering information on hardenability, section strength and comparative properties of other cast metals. Typical applications are pictured and a table of standard bar stock sizes is included.

41

How NesTiers will fit your M-H picture

A tricky folder on special tote boxes and baskets, that nest when empty and tier when full, gives you a run-down of products' many uses—in stockroom, on overhead conveyors, on pallets, and as storage. Folder includes a specification table to help you choose correctly. *The Chas. Wm. Doepke Mfg. Co., Inc.*

42

Literature on liquid-tight conduit

First of its kind to gain Underwriters' Laboratories approval for use in wet locations, Sealtite flexible liquid-tight electrical wiring conduit is described in 4-page illustrated publication. Applications are suggested, and specifications are included. *The American Brass Co.*

43

Find out about gas analysis equipment

Complete information about electronic Speedomax recorders and controllers, now used with L&N cell assemblies, is available in 8-page folder, "Speedomax Gas Analysis Equipment for Thermal Conductivity Measurements." Publication lists performance characteristics and describes design features of both measuring instruments and cell assemblies. *Leeds & Northrup Co.* ND46-91 (2).

44

Vibration and noise isolation in connecting lines

A two-color bulletin on Flexon Vibra-Sorbers is newly released by *Flexonics Corp.* Complete up-to-date specifications, installation instructions, and supporting data are given. Some typical applications are illustrated.



USE RIP-OUT POSTCARD for more information on products introduced this month.

NEW MATERIALS & EQUIPMENT

45

Wire rope combines flexibility and crush resistance



Employing a new principle in wire rope construction, a coiled steel spring core gives this rope flexibility plus ability to resist crushing — comparable to qualities of a screen door spring. It will be of great interest to those engaged in oil and gas well drilling and in other industries. *Jones & Laughlin Steel Corp.*

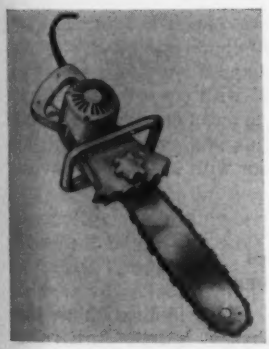
46

Lift truck device stops wheel-spin

A simple mechanism designed to brake a spinning rear wheel so that its mate can free vehicle from mud, snow or ice is now available for Yale fork lift trucks. Mico-no-stuk operates directly on braking system and is completely independent of machine's differential. It can be installed on a new truck at factory or supplied for installation on trucks already in use. *The Yale & Towne Manufacturing Co.*

47

Push-button oiler lubricates new electric chain saw



Low-priced electric chain saw, Model 125, is designed for heavy lumber and timber. It cuts up to 14 in. on one cut. A push-button oiler that lubricates chain while in operation is an exclusive feature of this saw. Chain is chrome plated, chipper-type that travels at 1400 ft. per minute for fastest cutting of heavy construction beams and felling, bucking, trimming and limbing of small and medium sized timber. *Skill Corp.*

48

Paper meets its own size

A new grade of paste-fortified rosin size for paper industry is made from dark rosin and is said to be highly efficient at low cost. Pexol 240 is offered to paper and board mills in a complete range of pale and dark fortified rosin size in both paste and dry form. *Hercules Powder Co.*

49

Motor with a cast-iron constitution

There is an important addition to Wagner's line of corrosion-resistant enclosed motors. Cast iron frame totally enclosed non-ventilated motors in frame sizes 66, 203 and 204 compose a newly developed companion line to fan-cooled motors. These motors are available in standard type EP, and also as explosion-proof type JP, with Underwriters' Laboratories approval for Class I group D hazardous locations. *Wagner Electric Corp.*

50

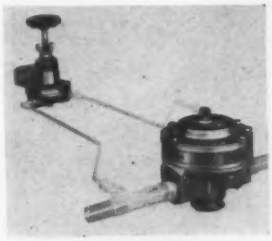
A welder is redesigned for improved performance



Sureweld A-C shop welders now are said to provide better welding performance, greater ease of operation and a lower selling price. For example, coils in a four-coil transformer are positioned horizontally, resulting in better ventilation and cooler operation. Insulation is improved by a double glass insulated magnet wire for primary and secondary windings. *National Cylinder Gas Co.*

51

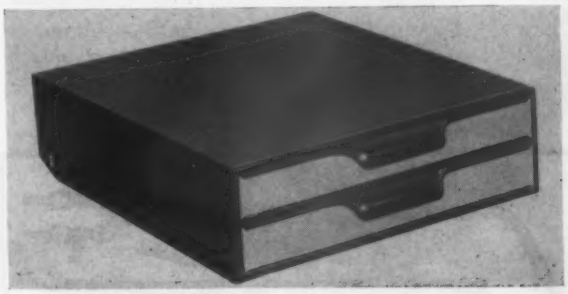
Precision air-pressure regulation plus flexibility



Here is a pilot-controlled air pressure regulator designed for extreme precision in air control over a wide operating range—from 2 to 120 psi. with a capacity to deliver more than 200 cfm. Pressure regulator can be placed where it will be most effective, and separate pilot control regulator can be installed at most convenient location. *C. A. Norgren Co.*

52

"Little Gem" method of storing small parts



Here is a good idea in small parts storage for use in industrial plants, school and home workshops, and in offices. Little Gems consist of two 1½-in. high drawers in a rugged one-piece welded frame having an overall size of 3¼ by 11 by 11 in. Each drawer is furnished with eight dividers. Any number of units may be stacked in one solid assembly. Each one comes in a baked green finish and weighs 10 lb. Extra dividers are available. *Precision Equipment Co.*

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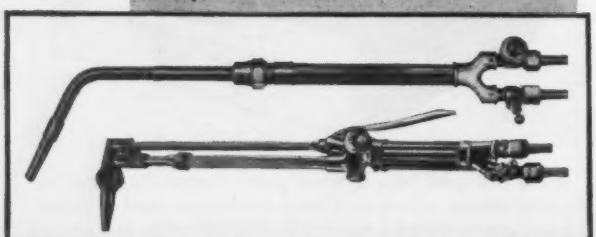


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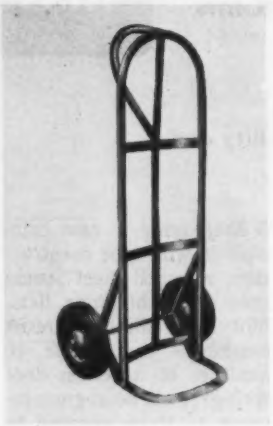


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53

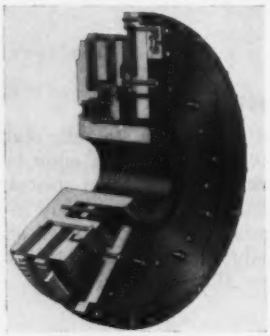
Wheel-Ezy hand truck features convenient handle mounting



New model Wheel-Ezy hand truck boasts a more convenient, rugged handle mounting and beveled nose that slides under materials easily. Curved handle is securely welded to truck frame at top and bottom to prevent its being broken loose under heavy service. Handle is comfortable and convenient to grasp in any position. Double-handle model is also available. *The Rapids-Standard Co., Inc.*

54

New air-clutch line has added torque capacity



Twin Disc Model PO is a series of air-actuated clutches designed to handle higher torque capacity loads with compactness and efficient transmission or work. With added torque capacity, design is lighter in weight and narrower in clutch width, thus permitting installation in less shaft space with close shaft-bearing center distances. *Twin Disc Clutch Co.*

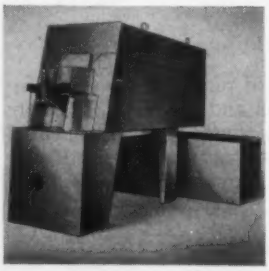
55

More air for less money

One reason why more air for less money is obtained from DeVilbiss V-type air compressors is a simple valve spring arrangement replacing old-style spiral springs. Two pieces of Swedish spring steel installed with concave surfaces in opposing relations are reported to mean greater compressor speeds with less down-time, thus adding up to high air capacity from a small compressor with less capital investment. *The DeVilbiss Co.*

56

Close-tolerance heat control feature of shaker-hearth furnace



Chief innovation of this shaker-hearth furnace is manufacturer's method of cradle mounting hearth plate, which eliminates hearth warpage due to continued use under heat. Cradle feature insures smooth movement of parts through heat zone, thus accounting for clean quality of finished parts. Two heat zone construction (charge and discharge) is used, making possible close-tolerance heat control. *Pacific Scientific Co.*

57

Retractable third wheel simplifies cartage



A new magnesium hand truck, with a fully retractable third wheel, makes carting and wheeling of heavy loads easier. With wheel extended, truck can operate in a three-point position, thus preventing any load from bearing on operator. When truck is stopped in this position, it can be re-started without physical effort normally needed to overcome dead load weight. For conventional use, third wheel retracts snugly against frame. *Magline Inc.*

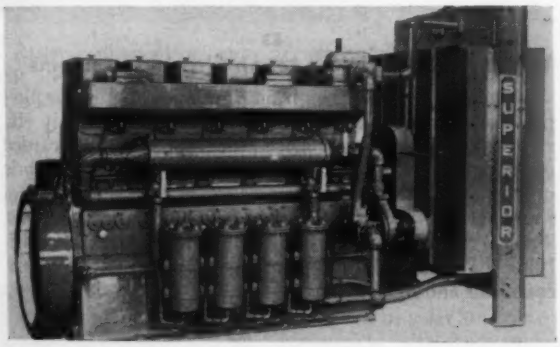
58

Packaged unit for piston grinding

Because of its fast, accurate action, new 6 by 8-in. semi-automatic piston grinding machine means real economy in grinding elliptical automotive and aircraft type pistons to fine limits of size and finish. It can be specially arranged for grinding complex skirts where degree of relief varies from top to bottom of skirt. Machine is a heavily built plunge grinder with a time-tested wheel spindle unit and a proved cam generating mechanism. *Norton Co.*

59

Gas drilling engine okay for industry and generator drives



This 10 by 10½-in. 6-cylinder engine has a continuous bhp. rating for drilling service of 450 at 900 rpm. Eight-cylinder model is rated 600 bhp. at 900 rpm. Many parts on model G-825 are interchangeable with those used on model PTD diesel drilling engine, thus spelling economy in spare parts for owners of both machines. Another feature is interchangeability of both type engines on same drilling rig drive skids. *The National Supply Co.*

60

Hot material conveyor belt is hot stuff

An important construction feature of this new conveyor belt designed to carry hot materials, is a nylon cord breaker embedded in thick rubber cover of belt to resist heat damage and extend service life of cover. Use of nylon is also reported to reinforce rubber cover, and to stretch when belt is flexed as it moves around a pulley. *B. F. Goodrich Co.*

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61

Easy operating all-position welder

"Fleetweld 51," a new E-6010 electrode, welds all types of joints in an overhead or vertical position, and is particularly suited for "vertical up" techniques, galvanized, dirty or rusty pipe, and applications requiring maximum penetration. Weld is fast-freezing, with small volume of slag. This shielded arc electrode is available in 14-in. lengths and diameters of 1/8, 5/32 and 3/16 in. It operates on DC. *The Lincoln Electric Co.*

62

Stock cabinet with eye appeal



Compact cabinet for storage of heavy-duty hose and couplings used in maintenance of hydraulic, compressed air, oil, and fuel lines can be used for display purposes. Unit M-100 offers six open bins for hose of varying diameters and 28 open compartments for couplings and adapters. As a shop stock bin, it allows visible inventory and easy assembly of orders. All-steel construction, with black crinkle finish, cabinet is sold with a suggested stock of 250 ft. of hose and 86 pieces, or special stock as desired. *The Weatherhead Co., Industrial Division.*

63

Tough filter fabric for tough filtering problems

Dynel windsor felt has been developed for use in filter press or vacuum filter applications calling for highly efficient cake formation or clarity of filtrate. Multi-ply carded construction, with uniform fiber distribution, this fabric creates an efficient cake supporting mat for collection of small particles and is resistant to acid or alkaline solutions. Typical filtration uses are for dyestuff manufacture, clarifying of electroplating solutions, production of yeast, chemicals and food products. *American Felt Co.*

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64

Avoid floor repairs with this dependable concrete base

Hydropel, an aqueous suspension of colloidal asphalt developed for use in cement concrete and mortars, is claimed effectively resistant to moisture-absorption, compression and abrasion. Material is said to be six to ten times more effective than other admixes without loss of strength or resistance to abrasion. *Bitumuls & Asphalt Co.*

65

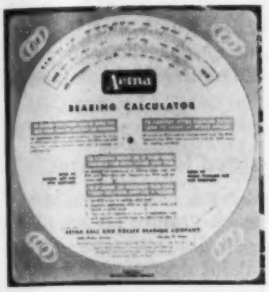
New versatility for sprockets

An interchangeable split tapered bushing makes possible use of same size Boston sprockets on shafts from 1/2 to 2 1/2-in. diameter in steps of 1/16 of an inch. Eliminating need to rebore stock sprockets to fit particular shafts saves time and cost of reboring, key seating and tapping for set-

screw. Shold-a-grip sprockets are available from stock in sizes from ½ in. up to and including 1¼-in. pitch. *Boston Gear Works.*

66

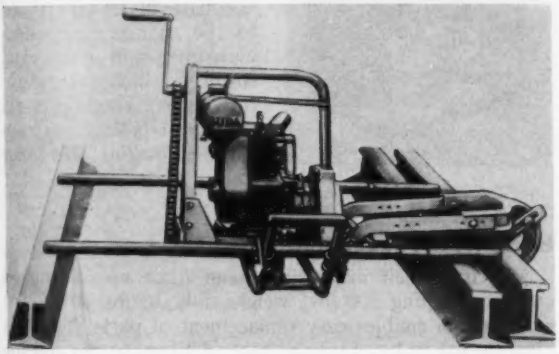
Device calculates choice of ball thrust bearings



Circular sliding scale of this new calculating device provides user with a quick and simple means of converting bearing capacities (load, speed and life) as required for any application into terms of rated bearing capacities. Device is available with no charge. *Aetna Ball and Roller Bearing Co.*

67

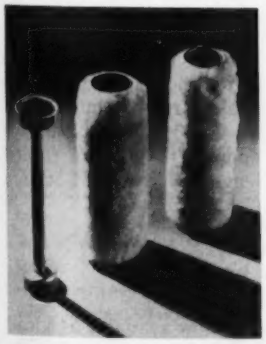
Telescope arm makes easier drill spotting



Easier drill spotting, more accurate drilling and longer unit life are benefits said to result from new improvement in Buda's power track drill. An insulated support and locater group, consisting of telescopic arms and attachments, now supports drill between tracks on top of rails. Need to block up drill or level off ballast to get true, level holes is eliminated. *Buda Co.*

68

Painting made easier with long-handled rollers



Industrial paint jobs are claimed to be safer and more economical with these new-type heavy-duty paint rollers, fitted with long handles. Each roller consists of high pile lambs' wool attached to a strong core of paper impregnated with phenolic resins which make it resistent to solvents, paints and thinners. Rollers are designed for rapid painting of walls, ceilings, floors, structural steel, etc. *Bakelite Co.*

69

New steel promises widespread usefulness

An austenitic alternate for 18-8 stainless is said to offer good cold working properties, weldability and ductility. Produced with manganese, chromium, and less than 1% nickel, product is believed to be, by its manufacturer, vanguard of a new family of stainless steel that will be a permanent addition to stainless market. *Allegheny Ludlum Steel Corp.*



Here are important, helpful features, you'll find in Meriam Absolute Pressure Gauges:

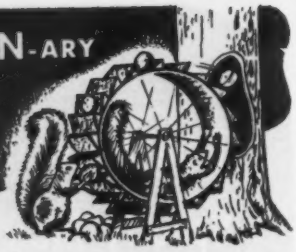
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- They accurately measure absolute pressure from one millimeter to 100" mercury.
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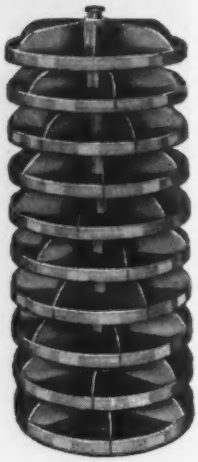
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70

Make your own photocopies in less than a minute

Photocopies of any office record can now be made by one machine in less than a minute without developing, washing, fixing or drying. Called "transcopy duplex," this device makes finished, photo-exact, positive copies from originals up to 14½ in. wide and in any length. It is light and compact and takes up about same space as dictating equipment. After being plugged into an electric outlet, it's all set to go. *Remington Rand Inc.*

71

Cut corners with straight-sided layout plates



New economy line of black granite layout plates is suitable for inspection and layout operations which do not require clamp edges and where an accuracy specification of 0.0002 in. per ft. is adequate. Plates are claimed to be non-rusting, non-warping, non-deflecting, easily washable, temperature inert, rigid over-all, moisture repellent and non-glaring. *Collins Microflat Co.*

72

Hand truck rugged but light-weight

Magcoa, a new magnesium hand truck with a rugged capacity topping 500 lbs., weighs only 18 lbs. All-bolted construction enables easy replacement of parts. Truck is ideal for use on beverage and other delivery trucks and for general factory, warehouse and loading dock use. *Magnesium Co. of America.*

73

Single-spindle chucking machine made bigger



New 2-AC single-spindle automatic chucking machine is a larger capacity model of Warner & Swasey's 1-AC model. Designed for high efficiency operation in diversified production, 2-AC features front and rear cross slides and a five-faced overhead turret, handles work up to 10½ in. in diameter and up to 9 in. in turned length. *Warner & Swasey Co.*

74

Speedy handling with this new lift truck attachment

Hyster's load grab attachment is now available as a load grab side shift and remote control fork positioner. Attachment can be aligned with load, thus eliminating necessity of maneuvering truck in crowded quarters. Side shifting can be done with or without load. Combination of basic load grab is said to permit speedier handling, less maneuvering and more accurate stacking. *Hyster Co.*

75

Automatic recording device for deepest depths

A new automatic recording device which can be lowered into deepest oil wells forms part of a conventional drill

string and records forces on various parts of drill. It measures impact resulting from contact of drill and formation, and also records temperatures, stresses, pressures and mud velocities. This equipment will permit engineers and scientists to obtain data required for design of better drilling machinery. *Borg-Warner Corp.*

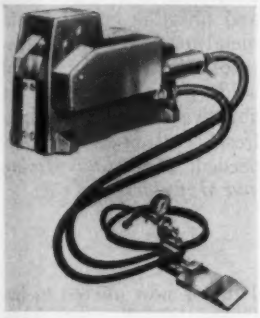
76

Mobile X-ray unit is simple to handle

An improved 250-kv. mobile x-ray unit (model 413) for radiographing unwieldy objects that require positive x-ray inspection is now available to industry. Model's improvements are mainly in flexibility and ease of handling. Operator is given additional protection so that he can stand inside cab. Radius of turn is so improved that unit can be more easily positioned. *Westinghouse Electric Corp.*

77

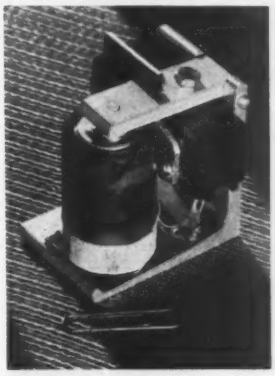
Air operated tape dispenser for pressure sensitive tapes



Speed, accuracy and power are claimed features of this automatic air-operated tape dispenser that is adjustable for various lengths and types of tape. Foot pedal control serves to increase production and improve workmanship. Dispenser attaches to any factory air line. *Air Fixtures, Inc.*

78

Snap-action plate-circuit relay



Positive, chatter-free circuit opening and closing under slowly increasing currents are claimed features in Belmont type C snap-action relay. It is particularly suitable for inductive loads and those involving high inrush current. Relay is said to be nearly immune to shock, vibration or tilting. *Thermo Instruments Co.*

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79

Portable pump with vacuum switch

To guard against "burn out" when liquid supply runs dry, a new portable pump incorporates a special vacuum switch. Makers recommend it for industrial, farm, marine and home use. Weighing 27 lbs., it is said to lift water up to 10 ft. unprimed, and 22 ft. primed. Switch automatically stops motor when liquid runs dry, thus eliminating danger of burnt out impellers. *Hypro Engineering, Inc.*

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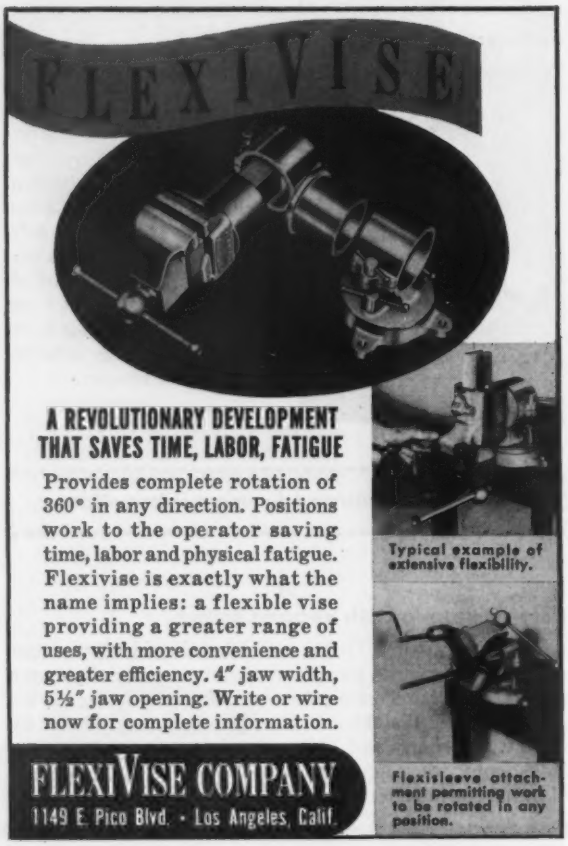
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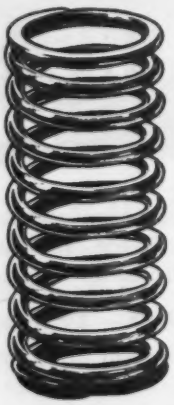
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80

Deep penetration with this new mild steel electrode

A new, improved E6010 electrode, Airco 78E, is now available for welding mild steel in all positions. Product is said to ensure deep penetration without undercutting, a minimum of spatter, and uniform weld deposits without fingernailing. Electrode is especially adaptable when it comes to welding in vertical and overhead positions. *Air Reduction Pacific Co.*

81

Abrasive file expedites deburring



Red Flash is a new abrasive file that is used like a conventional metal file while having a cutting surface that feeds from a coated abrasive roll. Designed for deburring and other filing and finishing operations in metalworking field, it features an 11-in. stroke and holds more than 6 ft. of abrasive cloth, providing a fresh cutting surface as needed. *Minnesota Mining and Manufacturing Co.*

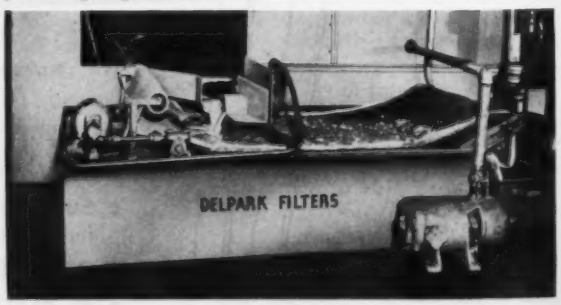
82

Solid tire for efficient M-H

Demountable Innacush solid tire is now offered to industry for field changeover purposes. Initially units come in three sizes to replace ten sizes of existing industrial pressed-on solid and pneumatic tires. Tire is designed for a split wheel that is tapered to 12½ deg. and slightly larger than tire so that there is maximum compression when wheel is bolted together. *United States Rubber Co.*

83

New system for filtration of paint spray booth water



Overspray from painting operations is said to be satisfactorily taken care of with this filtration system designed for removal of paint sludge and particles from paint spray booth water. Automatic skimming systems move flocculated paint to a wier over which paint matte is delivered to a Delpark filter. Firm says that labor is saved, spray booth efficiency is increased and, where reclamation of pigment is desirable, salvage is made easier. *Industrial Filtration Co.*

84

"Packaged" robot system monitors nuclear reactors

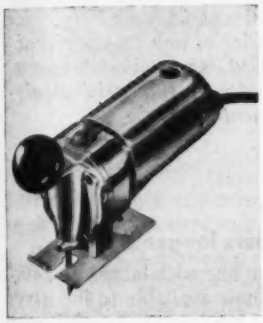
A new successful design is this first "packaged" automatic control system to electronically monitor operation

of atomic piles and their related processes. System automatically regulates rate of power generation of atomic piles at predetermined levels by regulating reactor's control rods which are analogous to an automobile throttle. *Minneapolis-Honeywell Regulator Co.*

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85

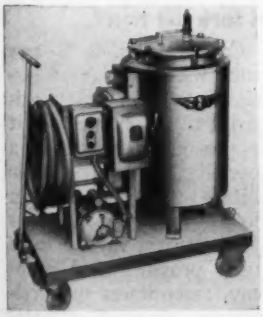
Electric jig saw made for multiple usage



This utility jig saw is said to do work of a jig saw, sabre saw, keyhole saw plus most band saw operations. Portable, it can be held and guided with one hand. It is supplied with five different types of blades for cutting both hard and soft wood, plywood, ferrous and nonferrous metals, etc. Numbered among tool's features is its ability to make pocket cuts without a drilled entrance hole. *The Black & Decker Manufacturing Co.*

86

Cartridge filter is portable



A portable cartridge filter, that goes wherever hydraulic, quench and other oils need cleaning, brings filtration to machines which otherwise would not get such protection. Unit is designed for one-man handling and can be moved quickly and easily. Flexible hose, with quick-connecting couplings, permit hook up to machine's oil supply without interrupting operation. Unit operates on recirculation basis. *U. S. Hoffman Machinery Corp.*

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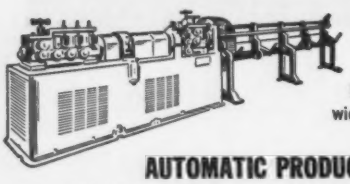
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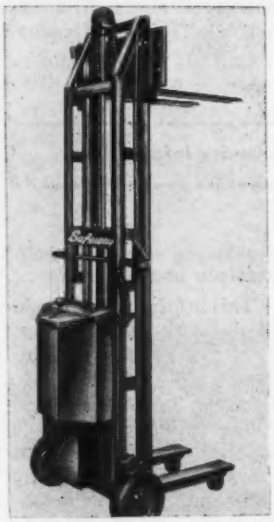
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87

Lift truck for heavier loads—greater heights



A powerful lift-truck, designed for maximum safety with one-man operation is made in three sizes, with lifting heights of 68, 80 and 100 in. and a lifting rating of 1250 lb. Hydraulic system used is powered by an automotive type battery and is equipped with a built-in charger with automatic cut-off and trickle charge. Low price of unit makes it practical for smallest business. *Safeway Industrial Equipment Corp.*

88

Burst-proof steam hose boasts longer life

A new, burst-proof steam hose line with longer life, efficiency and maximum safety is now available to industry. It is constructed of a natural rubber inner tube reinforced with one or two plies of high tensile steel wire braid. An asbestos braid is applied over wire braid reinforcement. Outer cover consists of an oil resistant butyl rubber cover. And each hose is completed by Aeroquip's "little gem" fitting. *Aeroquip Corp.*

89

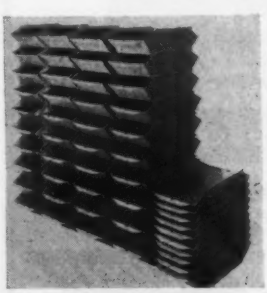
No gear shift with this M-H fork lift truck



Gas-O-Matic is a new truck with a unique transmission system that needs no clutch or gear shift. It uses a gasoline engine, a specially designed variable voltage generator and an electric motor as its power system. Firm says that its truck provides fuel economy, smoothness of acceleration, ease of maintenance, safety and operator convenience. *The Baker-Raulang Co.*

90

Tote boxes conserve space when empty

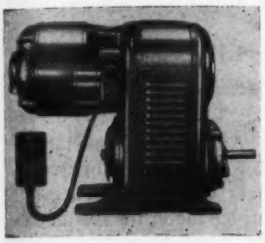


"Functional" is term applied to Rantote 877 tote boxes. When empty they can be nested to conserve space. When full they can be stacked with contents easily visible and accessible. A special hinged rail design eliminates loose bails and prevents empty nested boxes from telescoping or japping regardlesss of pressure. Calculation of tare is simplified by 10-lb. weight of each box. *Robco, Inc.*

Use rip-out postcard for more information

91

Remote control motor operates variable speed motor



A totally-enclosed auxiliary motor, ERC, is newly developed to provide a positive electrically-driven control for U.S. varidrive motors. It is compactly attached to varidrive replacing control handle and is operated by a push button. Auxiliary motor is ruggedly designed and is 1/15 hp., 1800 rpm. of reversible capacitor type. *U. S. Electrical Motors, Inc.*

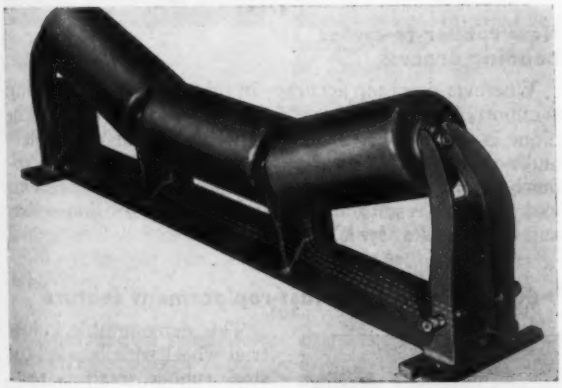
92

Lift truck work capacity increased with maintenance costs cut

Hydratork is a simple, rugged automatic drive for gas-powered fork-lift trucks which combines an adaptation of power multiplying torque-converter with a simplified forward-reverse transmission. Smooth acceleration, positive driver control, quick forward and reverse movement, plus *inching ability* are characteristics claimed for this new drive. *Clark Equipment Co.*

93

No tools for roll-inspection with new belt conveyor carriers



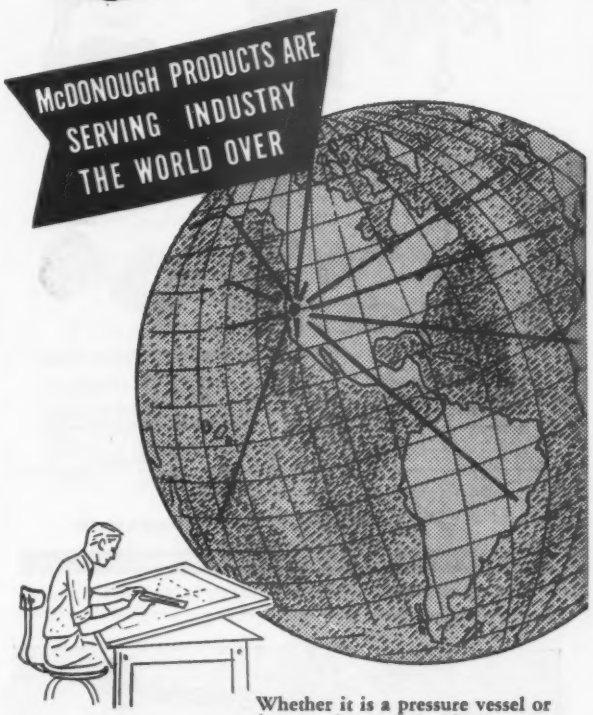
Belt conveyor carrier 220-series is designed with spun end rolls and welded steel frame. Seamless steel tube houses tapered roller bearing and is bored for precision alignment between roller diameter and bearing. Rolls can be lifted, without tools, from frame for inspection. *Stephens-Adamson Manufacturing Co.*

94

Insulation tester measures exact leakage

Model 500, a new, improved insulation tester in Epco's line of industrial test equipment, combines four ohm ranges. Completely portable, it requires no external source of current. Manufacturer says that it will instantly measure exact leakage of all insulation from zero to 200 megohms at a test potential of 500 volts DC. Instrument is claimed suited for production testing and for plant maintenance needs. *Epco Electronics, Inc.*

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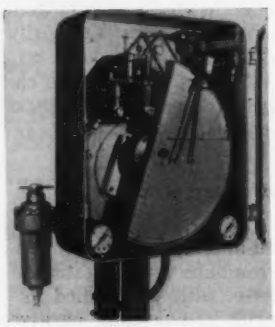
95

Heavy-duty waterproof toggle switch is versatile

In addition to being waterproof, here is a heavy-duty toggle switch that is claimed dust-tight, quickly and easily installed, that functions from 65 deg. below zero to 165 deg. above, and that withstands shock, vibration and salt spray. Switch mechanism is encased in a rubber compound. Continuous rating of switch is 175 amperes at 15 or 30 volts DC or 125 volts AC. *Riverside Manufacturing and Electrical Supply Co.*

96

Differential controller for orifice meter measuring stations



A newly developed differential controller for change-over valves will find use in orifice meter measuring stations where a wide variation of flow conditions is encountered. It is claimed to be an easy, positive and economical means of automatically turning an additional measuring unit into a line when needed and shutting it off completely when not needed. *Rockwell Manufacturing Co.*

Use rip-out postcard for more information

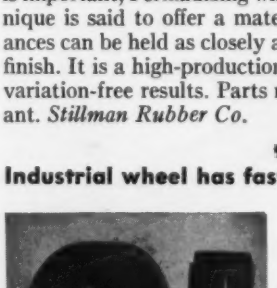
97

New rubber-to-metal bonding process

Wherever precision accuracy in rubber-to-metal bonding is important, Permadizing will be welcomed. This new technique is said to offer a material whose dimensional tolerances can be held as closely as metal—as fine as a 5 micro-finish. It is a high-production technique, giving consistent, variation-free results. Parts may be made corrosion-resistant. *Stillman Rubber Co.*

98

Industrial wheel has fast-replacement feature



This demountable industrial wheel with bonded-to-steel rubber tread is test-proved not to slip, stretch, or creep under heavy loads. Called Rapistan MB, this new class of wheel incorporates design features that promise to increase wheel life and cut costs up to 30%. Tire's tread is of uniform thickness throughout. *The Rapids-Standard Co., Inc.*

99

Twenty ton hydraulic gap press

Model 220G is a hydraulic gap type press for jobs that require accurate pressures of up to 20 tons. It is especially designed for speed of operation on forming, drawing, bending, forcing, straightening, etc. Large gap type frame makes press practical for unwieldy jobs. *Studebaker Machine Co.*

100

Lay out your plant with no pain

To solve complex, expensive problem of layout in these days of expansion, there are both two- and three-dimensional layout processes which may be used individually or in combination. Two-dimensional process consists of scale grid sheets and outline drawings of machine tools. Three-dimensional process consists of scale models. Manufacturer has in stock almost every known machine tool accurately dimensioned to ¼-in. scale. *Harman Associates.*

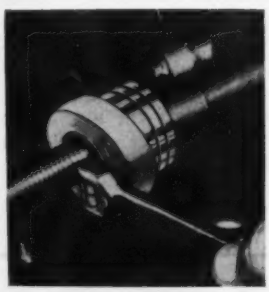
101

Want a free pint of Penetrol?

Penetrol is a dispersible oil that penetrates quickly to base metal on exposed or tightly closed surfaces such as joints. It utilizes rust to form a protective coating which serves as a paint foundation. It is used in steel, oil, shipping, transportation and other industries as a means of preventing and inhibiting damage caused by oxidation of iron and steel. A pint of this oil is offered free of charge, by its makers, to responsible executives. *The Flood Co.*

102

Hollow headed ratchet wrench simplifies work



Life Saver ratcheting socket wrench will drop down over any length stud or rod and ratchet the fitting. It is said to eliminate need for deep sockets, extensions and adaptors in wrenching around high standing center obstacles. It will operate perfectly in as small as a 7-deg. arc. Four sets are offered with snap-in sockets to accommodate a total range of hex nut sizes from .375 to 2.125 in. *Tubing Appliance Co.*

103

Fast sanded-finish for wood and metal

New 5-lb. Mall Orbig Sander is designed for finishing flat, curved, horizontal or vertical surfaces—both wood and metal. Made of aluminum alloy, it has a full-grip, trigger-switch handle, ¼ in. orbital motion operating at 4500 cycles per min., runs on standard 115-v. AC-DC. *Mall Tool Co.*

104

Stacker crane simplifies selective storage

Whiting trambeam stacker crane combines functions of fork lifts and overhead crane suspension and is designed primarily to expedite handling of drums, dies, motors, chemicals, paints and naval stores. Stacking mast, with fork lifts, is rigidly suspended from a double girder trambeam crane. Mast requires only one ft. of clearance in addition to width of load. *Whiting Corp.*

105

Steel strapping supports drop-ceiling

Here is a good idea for supporting drop-ceilings and thus saving fuel and adding eye appeal to old-fashioned, high-ceilinged structures. Steel strap webbing is strung parallel and at right angles and pulled tight. Over this web of steel is laid a glass fiber, vapor barrier faced, insulating material, called Ultralite. Method is said to produce a sturdy, solid overhead that will give many years of satisfactory service. *Signode Steel Strapping Co.*

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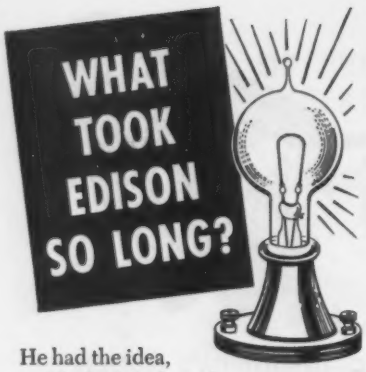


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FOR HOT MEASURING



THE SLIDING "trombone gauge," invented by Joe Aguilar, is put to work measuring red-hot blooms of steel. Previously the job was done with calipers, subjecting the crew of Pueblo's Colorado Fuel & Iron plant to 1,900 degrees of searing heat.

HYDROGEN FLUORIDE gas detectors developed

HYDROGEN fluoride gas, a potentially injurious air pollutant, has been developed at Stanford Research Institute. The new device can detect and measure parts-per-billion of hydrogen fluoride gas in the atmosphere.

Detection is made on a roll of filter paper impregnated with a fluorescent metal salt. Contact with the slightest trace of hydrogen fluoride gas diminishes the fluorescence. As the tape slowly unwinds from one spool to another, only a limited section of the moving surface is exposed to the atmosphere. Variations in fluorescence are measured photoelectrically and the results are graphed on a continuous recorder.

The instrument is designed to record fluctuations over a period of several days and may be left unattended in the field. Present sampling methods accumulate the gases from the air for several hours and measure the average intensity. Any extreme highs or lows of concentration pass unmarked.

DOUBLE-DRUM dejuicing press

WESTERN Regional Research Laboratory, as part of a project on the utilization of pear cannery waste, has developed a double-drum dejuicing press. This press consists primarily of two driven drums partially covered by a pressurized dome attached to drums through seals that permit free rotation of the drums.

As drums rotate, pear cake is discharged from between them and drops into a conveyor. A gentle filtering action is initiated, followed by a pressing of the undisturbed filter cake, which produces a much clearer juice than is obtained from the usual type of presses. Estimated capacity of the dejuicing press for ground apples is between 15 and 25 tons per hour.

The drum is still in the developmental stage and it is expected that certain mechanical improvements will be made.

NOISE SUPPRESSOR for "Project Hush"

A FOURTH noise suppression muffler is to be built immediately at Northrop Aircraft's Hawthorne plant to meet expanding requirements of the company's Scorpion F-89 all-weather interceptor production program.

Resembling long, horizontal chimneys, the mufflers are built of hollow volcanic ash blocks. Records show that these mufflers reduce the roar of the Scorpion's powerful jet engines to a tolerable level, even within a few feet of the airplanes.



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WESTERNERS AT WORK

California

JAMES R. FOWLER is promoted to supervisor of application engineering of *Pacific Gear & Tool Works*, San Francisco, transferring from company's Seattle plant, *Western Gear Works*.

W. B. HUNN is elected vice president in charge of *Thor Power Tool Co.'s* Los Angeles works.

J. H. STAUB, equipment engineer at Downey plant of *North American Aviation*, joins *Bonner Machine Works*, Los Angeles, as industrial engineer.

As a result of post-election retrenchment policies in San Francisco office of Department of Commerce, VAN BEUREN STANBERY, area development specialist, joins staff of *Industrial Survey Associates*, San Francisco, and CARLETON GREEN, business analyst, goes to *Stanford Research Institute*.

ROBERT EDGECUMBE resigns as chief industrial engineer of *Virtue Bros.*, Los Angeles steel furniture manufacturers, to join staff of *Ben Borchardt and Associates*, management consultants. His former post at *Virtue Bros.* is filled by PAUL WELLMAN.

GEORGE M. PETZAR, previously plant engineer for *American Smelting & Refining Co.* at Garfield, Utah, moves to Alhambra, to become assistant plant engineer for *C. F. Braun & Co.*

RICHARD E. LAUTERBACH moves from position as manager of *General Petroleum Corp.'s* Ferndale, Washington, refinery to post of manager of manufacturing department at company's home office, Los Angeles.

J. A. RYAN is appointed controller and head of accounting division for *Helipot Corp.*, S. Pasadena, maker of potentiometers and other electronic precision items. He was formerly chief auditor for *Joyce Shoe Manufacturing Co.*, Pasadena.

ADRIAN C. WEST receives Walter D. Hodson Junior Award from American Society of Lubricating Engineers. He is a research engineer with *California Research Corp.*, San Francisco. J. R. MACGREGOR advances to newly-created post of research coordinator, petroleum products, *California Research Corp.*

ROY SJOLUND joins *Bulldog Pallet Co.*, Newark, as production manager. He was formerly plant superintendent of *Larson Ladder Co.*, San Jose.

DR. PAUL B. MACCREADY, JR., joins research staff of *Rotor-Craft Corp.*, Glendale, to work on helicopter development and a special Navy project.

GEORGE H. BERLIN, JR., becomes manager of the industrial finishes division of *E. I. Du Pont de Nemours & Co.*, San Francisco.

JOHN B. FLORANCE is named chief engineer of *James H. Knapp Co.*, Los Angeles, designer and builder of industrial furnaces. R. PAUL TOEPPEN, firm's general manager, is elected vice president.



R. P. Toeppen



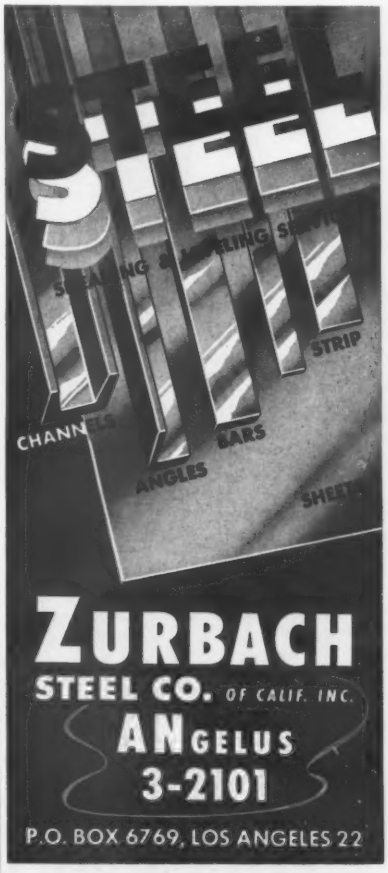
J. R. Keach

J. R. KEACH joins *Pioneer Rubber Mills*, San Francisco, as assistant to executive vice president. He comes from Philadelphia, where he was vice president and general manager of *Quaker Rubber Co.*

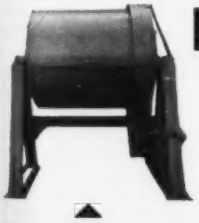
R. F. BAIRD, formerly of *Petley, Inc.*, is named vice president and general manager, *Aircraft Metal Forming Co.*, Burbank.

JOHN R. MCGRAW, formerly manager of *National Association of Manufacturers'* Pacific Northwest region, is named manager of Pacific Central region with headquarters in San Francisco. He will be responsible for territory comprised of Hawaii, Northern California, Northern Nevada, Wyoming, Utah and Colorado. His assistant will be BERNARD C. HARTUNG, previously program director for region.

DAVID M. PETTY, JR., formerly general foreman of mechanical and electrical department at *Bethlehem Pacific Coast Steel Corp.'s* South San Francisco plant, appointed super-



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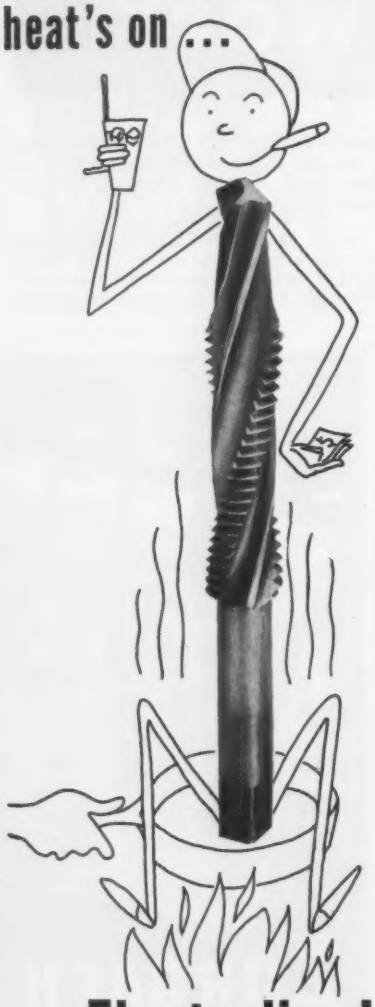
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intendent of department. He succeeds COLIN L. STOKES, deceased.

H. H. GREENWALD, comptroller, is elected to post of treasurer and assistant to president, *Pacific Airmotive Corp.*, Burbank, Calif.

FRANK E. REHM retires from post of Pacific Coast vice president in charge of personnel and industrial relations for *Shell Oil Co.* He is named secretary-treasurer of *Pacific Oil Institute* to succeed WENDELL THAYER, who resigns position to enter private business.

L. I. HOLMES, manager of *Rockport Redwood Co.*, Rockport, is named general manager of that firm and of *Rounds and Kilpatrick Lumber Co.*, Cloverdale. He replaces R. L. TURNER, resigned. He will make his headquarters in Rockport.

J. H. OVERHOLSER resigns as executive vice president of *Hydro-Aire, Inc.*, Burbank aircraft accessories firm.

L. WHITNEY SIEBERT is appointed director of personnel, *Ampex Electric Corp.*, Redwood City. He was formerly on employee relations staff of *Lockheed Aircraft Corp.*, Burbank.

JACK D. CAVAN is elected vice president of *Round California Chain Co.*, and LEONARD D. WOODS assistant secretary of *Round Los Angeles Chain Corp.* Each man will retain his position as general manager of his respective company.

ROBERT HOOD, formerly chief mechanical engineer of *Gertsch Products, Inc.*, Los Angeles, is upped to plant manager.

E. R. HOLLINGER is named director of *Bradley Paint Co.'s* furniture finishes division, Los Angeles. He was formerly technical director of Los Angeles paint, varnish and lacquer laboratory, *Sherwin-Williams Co.*

DONALD M. MOUNCE, upped from *Campbell Soup Co.'s* Sacramento manager, to general production manager of all company plants with headquarters in Camden, N. J.

Pacific Mercury Television Manufacturing Corp., Los Angeles, makes following appointments: BERNARD DIENER becomes chief engineer of radio and television division responsible for home receiver development and design; and STAN CUTLER, vice president and chief engineer, becomes director of engineering and acting chief engineer of new special products division.

PETER S. HASS, previously assistant works manager of *Permanente Cement Co.'s* Permanente, Calif., plant, promoted to assistant to vice president and general manager with headquarters in Oakland.

DAVID CRENSHAW resigns as chief engineer of *Columbia Electric Manufacturing Co.*, Spokane, Wash., and joins *Supreme Lighting Co.*, Los Angeles, to handle design of lighting fixtures, also advertising and public relations.

O. F. MARSAL is named plant manager at *Lincoln-Mercury* division's Los Angeles unit. He comes from Michigan, where he was manager of division's plant at Wayne.

LLOYD L. HILL, previously controller and assistant to general manager of *Summers Gyroscope Co.*, Santa Monica, is promoted to position of vice president and general manager.

FOR YOU

Western Industry

CLASSIFIED ADS!

Turn NOW to Page 107

GEORGE G. FOSTER, JR., formerly of *Solar Aircraft*, joins *California General, Inc.*, Chula Vista, as contract administrator.

WILLIAM C. JORDAN, formerly president of *Curtiss-Wright Corp.*, joins *Hiller Helicopters*, Palo Alto, in capacity of executive vice president and general manager.

Avoset Co., San Francisco, names PAUL J. BOURCHIER as vice president in charge of production.

Utility Trailer Manufacturing Co., Los Angeles, ups JOHN C. BENNETT from position of assistant general manager and secretary to post of president.

T. G. HAWKINS is elected treasurer of *The Garrett Corp.*, Los Angeles. In advancing to this position, he leaves his former post of assistant treasurer. He replaces W. D. MORGAN, who resigns from position of treasurer while retaining title of vice president of finance. E. A. BELLANDE is named vice president and assistant to the president of *Garrett Corp.* In taking over new job, he leaves post of vice president and general manager, *AiResearch Aviation Service Co.*, a Garrett division. He is succeeded by J. J. O'BRIEN, formerly assistant manager.

WILLIAM T. SPRAKE is newly appointed superintendent of production control department, *Dalmo Victor Co.*, San Carlos. He was formerly production engineer at firm's plant No. 4. RALPH H. BROWN joins *Dalmo Victor* as purchasing agent. He was formerly purchasing engineer with *Harvey Machine Co.*, Torrance. He succeeds PAUL J. SAMPSON, now on sick leave.

WILLIAM M. FRIEDMAN joins staff of *Stanford Research Institute* as staff consultant on industrial design research problems. He was formerly associate director of Walker Art Center, Minneapolis, Minn.

M. F. MILLER advances to manager of operations for Richmond refinery of *Standard Oil Co. of Calif.*, succeeding J. T. HIGGINS, who was recently elected president of Standard subsidiaries, *Salt Lake Refining Co.*, and *Salt Lake Pipe Line Co.* J. S. DETWEILER replaces Miller as assistant manager, operations control division, of company's manufacturing department in San Francisco. T. M. SHEEHY, former assistant superintendent of light oil division at El Segundo refinery, steps up to post of assistant manager of operations control division.

Pacific Gas and Electric Co., San Francisco, makes following appointments: DUNLAP D. SMALLEY, vice president in charge of operations, advances to position of vice president and assistant general manager; he is replaced by GEORGE H. HAGAR, formerly manager of electric operation; ARTHUR J. SWANK, manager of general construction, becomes vice president in charge of general construction, a new office; ROBERT H. GERDES becomes vice president and general counsel, a new office; and EDMOND E. MANHARD, formerly assistant secretary, succeeds RAYMOND KINDIG, retiring, as company secretary. GEORGE A. PEERS, formerly general superintendent of transmission and distribution, becomes manager of electric operation. He is replaced by THOMAS P. COPELAND, previously manager of company's Shasta division. LEIGH H. SMITH, company's Richmond district manager, takes over Copeland's former duties. H. H. COURTRIGHT, manager of San Joaquin division, is appointed assistant to vice president and general manager Sutherland, continuing headquarters at Fresno. ARTHUR D. CHURCH, manager of North Bay division, transfers to Fresno to become San Joaquin division manager. His North Bay job is taken over by W. FRANK PAPE, formerly division gas superintendent in East Bay division. Four operating department executives are promoted in general office: IRA W. COLLINS from general superintendent of power control to assistant to new vice president in charge of operations, GEORGE H. HAGAR; JACK H. MARTIN, assistant engineer in electrical operation, to replace Collins; ROBERT H. MILLER, now general superintendent of communications, as assistant to Martin; and ROBERT L. BRINTON to succeed Miller.

DONALD P. FRANKEL is appointed assistant director of customer relations, JUNIUS A. HOLTE, chief tool engineer, and CHARLES SANDLIN, manager of production control, by *Marquardt Aircraft Co.*, Van Nuys.

HARVEY V. EASTLING, formerly general sales manager, becomes assistant general manager of Pacific division, *Link-Belt Co.*, San Francisco, and DONALD E. THAL is promoted to sales manager of the San Francisco plant.

HERMAN LIBKIND is appointed executive engineer by *Western Insulated Wire Co.*, Los Angeles. He belongs to wire and cable section.

HARLAN W. HOLMWOOD, vice president, is appointed executive vice president of *General Telephone Co. of California*, Santa Monica. DEAN M. BARNES becomes operating vice president; R. K. CHASE, vice president and treasurer; MARSHALL K. TAYLOR, secretary; GUY T. ELLIS, controller; IVAN KNOX, assistant controller.

GEORGE BARR assumes duties as consulting engineer for manufacture of large turbine parts at *Plant Shipyard Corp.*, Alameda.

A. SHERIDAN ATKINSON is placed in charge of financial and accounting functions of *W. R. Grace & Co.* at its San Francisco headquarters.



Colorado

WAYNE A. NOLL, district office supervisor for *Pacific Intermountain Express Co.*, moves from Denver to Chicago in exchange transfer with supervisor at Chicago district office, Mr. ELZIE MANSHIP, who returns to the Denver post.

E. H. CLAY becomes administrative assistant in charge of properties and legal at *United Air Lines'* operating base in Denver. He replaces D. C. MEENAN, now company's assistant treasurer, and is succeeded by C. W. FIELD in post of superintendent of regulations and forms.



J. A. Wilson, Jr.

J. A. WILSON, JR., formerly chief draftsman and supervisor of design and drafting, *C. A. Norgren Co.*, Englewood, is appointed to position of assistant chief engineer. D. G. FAUST, Norgren's chief engineer, receives Alfred E. Hunt Award from *American Society of Lubrication Engineers.*

CALVIN L. COOKSEY, formerly district production superintendent at Vernal, Utah, transfers to exploration department of *Carter Oil Co.'s* Western division at Denver.

Idaho

R. GENE WELLS, formerly with *Union Carbide & Carbon* at Oak Ridge, Tenn., and subsequently with *Roane-Anderson* organization in operation of *Civic Enterprises, Inc.*, at Oak Ridge, joins AEC Division, *American Cyanamid Co.* at Idaho Falls, to take charge of industrial and community relations.

CORRECTION: The location of the *Coeur d'Alene Hardware & Foundry Co.* was incorrectly given in the June issue. It is located at Wallace, not at Coeur d'Alene.

Oregon

West Coast Lumbermen's Association loses, through retirement, four executives with long service in lumber industry: RALPH D. BROWN, assistant secretary manager; EMIL HANSON, assistant traffic manager; W. E. FRANKLIN, freight claims agent; PAUL E. KENDALL, advertising manager.

JOHN R. CAMPBELL is promoted to assistant Western traffic manager at *Consolidated Freightways* general offices in Portland, where he has been manager of billing and rating department.

E. EMMONS COLEMAN, formerly general manager of *Bradley Mining Co.'s* electric furnace plant at Stibnite, Idaho, is chosen to manage *M. Hanna Development Co.* ferronickel plant at Riddle, Ore.

ROBERT H. MCCULLOUGH of *Don Allen & Associates*, Portland advertising agency, is promoted to post of production manager.

E. H. BAILEY is named general manager of *Union Pacific Railroad's* Northwestern district with headquarters at Portland. He succeeds LEWIS A. COLLINS, retired. A. MCALLISTER succeeds Bailey as general superintendent at Portland. J. G. KIMMELL advances to superintendent of Oregon division with headquarters at Albina, and C. B. LISHER is new assistant division superintendent.

R. P. JUNICHEN advances from position of secretary and assistant-manager to managership of *Gresham Berry Growers*, Gresham. He replaces JOE FISHER, now head of new *Oregon-Washington Strawberry Council.*

Utah

JOSEPH B. TALLEY, assistant works manager at Bacchus plant of *Hercules Powder Co.*, is named works manager, succeeding JAMES A. STRUTHERS, deceased.

American Smelting & Refining Co. creates new office of division purchasing agent at Salt Lake. A. R. WORTHEN, supply agent for the Garfield mill and *Garfield Chemical Co.*, is selected to fill this new job, and his former assistant, O. P. CLARK, moves up to his former spot. W. R. COOK, supply agent at El Paso, is transferred to Salt Lake to become Worthen's assistant.

S. K. DROUBAY, former manager of *Anaconda Copper Mining Co.* holdings in Inyo County, Calif., is named general manager of new *United Park City Mines Co.* in Keetley.

E. M. NAUGHTON, formerly assistant general manager, is named general manager and vice president of *Utah Power & Light Co.* O. H. RIRIE assumes post of industrial relations manager in Salt Lake City. He moves from Ogden district office managership. WILL W. BOWMAN, former publicity director, is appointed publicity and advertising director. ADAM S. BENNION, former vice president, retires from post.

Washington

WILHO ROSS, superintendent since 1942 of *National Cranberry Association's* plant at Markham, becomes manager of both the Markham and Centralia plants. He succeeds W. S. Jacobson, deceased.

DONALD SHERWOOD, former vice president of *Walla Walla Canning Co.*, advances to presidency, succeeding JOHN G. KELLEY.

More Nor'Westers

C. H. MORDY joins *Farmland Irrigation Co., Inc.*, as executive vice president and general manager, at company's general offices in Portland, recently moved from Fresno, Calif. Mordy was formerly with *Burrard Dry Dock Co., Ltd.*, of North Vancouver, B. C.



C. H. Mordy



T. J. Bannan

THOMAS J. BANNAN, president of *Western Gear Works*, receives Honorary Doctor of Laws degree from Seattle University for leadership in industry, government, civic life and education.

G. J. FALE is appointed assistant controller of *Georgia-Pacific Plywood Co.*, Olympia.

LEIGHTON H. STEELE joins Seattle staff of *Lumbermen's Industrial Relations Committee, Inc.*, as a personnel and employee relations counselor. He leaves federal government service.

FRED J. MOLLERUS takes over as plant electrical engineer for *General Electric Co.'s* manufacturing department at Hanford plutonium plant. His successor as manager of electrical distribution and telephone section is ROBERT B. BRITTON.

Wyoming

IRA D. CROGHAN is named superintendent of *Holly Sugar Corp.*, Torrington, succeeding R. E. MCLEOD, who leaves because of poor health. Croghan leaves superintendent's post at Holly plant in Hardin, Montana.

ASSOCIATIONS ELECT

American Die Casting Institute, Pacific Coast Group: Chairman, R. R. DREIBUS, vice president in charge of sales and operations of *Harvill Corp.*, Los Angeles; secretary-treasurer, J. M. DAVIS, *Union Die Casting Co.*, Los Angeles.

American Society of Tool Engineers, Tucson chapter No. 106: Chairman, JAMES D. BEACH; first vice chairman, GLENN E. QUILLEN; second vice chairman, HARRY E. MCCLAIN; secretary, SEYMOUR S. JACOBSON —all of *Hughes Aircraft Co.;* treasurer, ROBERT F. HOWARD, *Grand Central Aircraft Co.*

American Steel Warehouse Association, Northern California chapter: President, FRANK B. STEWART, district manager of U. S. Steel Supply division, *United States Steel Corp.;* vice president, PAUL CHILDS of *Earle M. Jorgensen Co.;* secretary, CHARLES S. CONRAD of *Tay-Holbrook, Inc.;* treasurer, S. W. SLONEKER of *Hickinbotham Bros., Ltd.;* and chapter director, SIDNEY DIEHL of *Foucar, Ray and Simon.*



Left to right: *H. Butler, R. J. Leek, J. E. Badgley, and J. A. Lane, M-H Association*

Material Handling Association of Southern California: President, RUSSELL J. LEEK, *Calabar Corp.;* vice president, ART CANFIELD, *M. E. Canfield Co.;* secretary-treasurer, J. E. BADGLEY, *Western Industry.*

American Institute of Mining and Metallurgical Engineers: Chairman of membership committee of institute's beneficiation division, C. E. GOLSON, *Colorado Fuel & Iron Corp.*, Denver; chairman of programs and meetings committee of institute's minerals industry education division, M. I. SIGNER, faculty dean of *Colorado School of Mines,* Golden.

Saw Association of Southern California: President, MAC BUBECK, *Glendale Saw Works;* vice president, WILLIAM HOWELL, *Atlas Saw Service;* secretary-treasurer, ROGERY ZACHERY, *Acme Saw Shop.*

Western TRADE WINDS

News about those who distribute and sell industrial equipment and materials

A. W. ANDERSON comes to Los Angeles area as factory sales representative, Detroit diesel engine division of *General Motors Corp.* He formerly was in New Orleans in same capacity. CHARLES HOWELL, former Los Angeles area sales representative, transfers to Tulsa sales office.

A. H. Barbera and Co. of Los Angeles is named Southern California representative for *Atkomatic Valve Co.*

V. B. MILLER becomes manager of *General Electric Co.'s* Riverside, Calif., office. He comes from firm's Los Angeles office where he was an industrial sales engineer. JOHN E. PENDLETON, previously supervisor of fractional horsepower motor sales in GE's Los Angeles office, is named manager of component product sales for district. FRED GARRISON, formerly assistant manager of apparatus utility sales department in Los Angeles, becomes manager of apparatus product sales for Pacific Southwest district. H. H. BULLOCK takes over as manager of sales for district. He is replaced as manager of firm's Phoenix office by C. H. HOLLAND, formerly manager of Riverside office.

Transmission Engineering Co. is appointed by *Young Radiator Co.* of Racine, Wisc., as exclusive representative for firm's line of shell and tube heat exchangers in San Francisco trading area.

New mill-branch warehouse and office for *The Carpenter Steel Co.* in San Francisco area opens at Belmont, Calif. D. J. O'NEIL, company's Pacific Coast manager, is in charge of warehouse and office, and salesmen claiming this headquarters are M. J. BROWN and K. C. LARGENT.

OGDEN KIESEL, formerly Bay area sales representative for *Kaiser Permanente,* joins *Hamerslag Equipment Co.* as sales representative in East Bay. HANK WALRAVEN joins Hamerslag as new sales representative in San Francisco. He comes from *Industrial Service Co.,* where he was a service engineer.

National Starch Products, Inc., makes several changes in its West Coast technical and sales personnel. ROBERT L. BURK, formerly a company salesman covering Seattle territory, is promoted to position of sales supervisor, Los Angeles area. FRED T. KING will handle sales in Pacific Northwest with headquarters in Portland. He comes from firm's Minneapolis territory. JOSEPH J. DUCHARME is transferred from concern's New York laboratory to its San Francisco technical service department where he replaces H. A. KING, now with U. S. Armed Services.

J. C. PORTER, formerly *General Paint Corp.'s* Spokane division manager, is named vice president in charge of consumer and dealer sales. E. R. CLUFF becomes vice president in charge of painter and maintenance sales. He was previously firm's midcontinent division manager at Tulsa. Both will now headquarter at San Francisco.

International Business Machines Corp. makes following appointments: FOSTER C. HAMLIN, time equipment manager in San Francisco office; THOMAS W. CUMMINS, time equipment special representative for West Coast sales districts 12, 13 and 14.

Shell Chemical Corp. names S. T. RAYCRAFT as its San Francisco district manager to replace H. R. NEBEKER, now on special assignment for concern.

Flying Tiger Line, Inc., Burbank, names KENNETH R. ALBERTSON rates and tariffs manager. He succeeds WILLIAM STANLEY, deceased.

Enterprise Sales Co. is organized to represent *Screw Machine Products Co.,* Portland. S. F. WIEMER and PETER R. THOMPSON are both principals of sales firm.

JOHN L. HIGGINS, formerly Los Angeles district sales manager of *Slick Airways, Inc.,* Burbank, Calif., is named firm's assistant general sales manager.

JACK C. O'TOOLE is named, by *Bardwell & McAlister, Inc.,* Burbank, Calif., as general sales manager of its automotive division. He comes from *Prestole Corp.,* Toledo, Ohio.

PAUL FEEGER is assigned to Albuquerque industrial sales engineering staff of *Minneapolis-Honeywell Regulator Co.*

HERBERT E. FRYER retires from *Columbia-Geneva Steel division, U. S. Steel Corp.'s* Denver office as manager of sales. CHARLES F. B. PRICE, JR., Columbia-Geneva wire rope engineer, is named sales engineer for wire rope products. EDWARD H. PAULSEN becomes Los Angeles district office manager, *U. S. Steel Supply division of U. S. Steel Corp.,* succeeding KELLER G. PHILLIPPE, who is promoted to position of product manager, alloy sales in Los Angeles district.

BERKELEY L. FULLER, of *Hoffman Radio Corp.* and *Hoffman Laboratories, Inc.,* Los Angeles, is newly appointed factory district manager for Northern California territory. He will work closely with Hoffman's distributing agencies and franchised TV dealers in area.

THOMAS A. MOLLARD, formerly electrical engineer in control and systems department for *California Research & Development Co.,* joins HERMAN E. HELD, manufacturers representative, as a sales application engineer. His headquarters will be in San Francisco.

Farr Co. of Los Angeles, producer of air filters and filtration equipment, appoints *Dust Control, Inc.,* Hawthorne and San Diego, Calif., to represent Farr sales and service in area.

E. P. Gilsdorf Co. of San Francisco will represent *R. M. Hollingshead Corp.,* Camden, N. J., on West Coast sale of sanitary maintenance products.

Sandvik Steel, Inc., Swedish steel firm, opens a sales and distribution office in Los Angeles. E. G. SAMMANN is district manager for office which serves eleven Western states.

King-Knight Co., San Francisco, is appointed distributor for Nordberg 4FS diesel engines in Central and Northern California by *Nordberg Manufacturing Co.,* Milwaukee, Wisc.

Square D Co. opens its new Seattle plant which will serve entire Pacific Northwest. In conjunction with plant, new sales coverage will be set up in Portland and Spokane. Picture shows a group gathered at opening event. Left to right are: P. STRACK, president of Seattle Chamber of Commerce; L. G. MAECHTLEN, sales manager of Square D's Western division; A. POMEROY, Seattle mayor; J. H. PENGILLY, company vice president; and D. MILLER, Square D district manager for Northwest.



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Air Reduction Pacific Co., Seattle, adds about 5,000 sq. ft. to its present building to make more room for order and storage space.

Crown Zellerbach Corp. makes five promotions as follows: JAMES P. TOWEY, formerly general sales manager, kraft and sulphite division, and WILLIAM J. ZELLERBACH, formerly manager of specialty and new product sales, become assistants to vice president; EDWARD P. PARTLAND, formerly assistant general sales manager of kraft and sulphite division, is now manager of industrial sales; GEORGE S. RUNYAN, formerly assistant general manager and general sales manager of concern's eastern division, New York City, transfers to San Francisco as manager of distributor sales; GENE B. MACFARLAND, formerly staff assistant, kraft and sulphite sales, becomes manager of sales promotion.

PAUL CLANCY will cover territory of eastern Washington, northern Idaho and western Montana for *Chase Bag Co.*, Chicago.

Phillips Petroleum Co. appoints L. G. WILKE as its assistant sales manager with territory including Wasatch, Inland Empire and Denver divisions. He is replaced as regional manager of sales by R. M. WATSON, formerly marketing assistant.

Washington Water Power Co. appoints KIMBALL I. JACK as manager of its newly expanded general sales, promotion and information department. He was previously head of concern's advertising and publicity department.

Wilson & George Meyer & Co., Intermountain opens offices in Salt Lake City. A subsidiary of *Wilson & George Meyer & Co.*, a Pacific Coast firm, this distributing firm will handle phosphate fertilizers produced by *Western Phosphate, Inc.'s* plant now under construction near Garfield, Utah.

A branch office, opened in Portland by *American Cyanamid Co.'s* Lederle Laboratories division, will serve as Lederle's headquarters in Pacific Northwest and replace division's Seattle office. New office is managed by KENNETH H. TATE.

Link-Belt Co. names HARVEY V. EASTLING assistant general manager of its Pacific division with headquarters at San Francisco. He



H. V. Eastling



D. E. Thal

was formerly general sales manager for Pacific division. DONALD E. THAL, formerly San Francisco plant assistant sales manager, now holds post of sales manager.

General Air Conditioning Corp. appoints W. R. CURTISS, manufacturers agent, as its Northern California regional sales manager. He will headquarter in San Francisco.

W. E. PRIEST, formerly assistant sales manager at *Rosenberg Bros. & Co.* headquarters in San Francisco, leaves for New York as district sales manager of Sugaripe dried fruits. He is succeeded by JACK SULLIVAN.

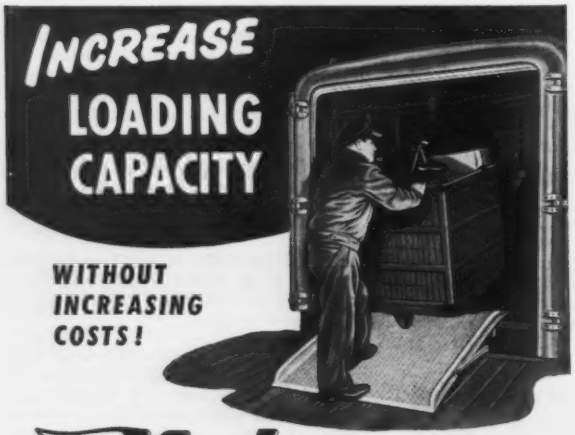
Bristol Brass Corp. of California, with offices and a warehouse in Los Angeles, is formed by *Bristol Brass Corp.* of Bristol, Conn., as expansion of its West Coast services. JOHN H. SMITH will be in charge of new unit. He was formerly with *Continental Metals*, Los Angeles, as vice president and general sales manager.

RALPH S. LAU, formerly sales representative in Oregon district, replaces H. H. ROBBINS as Oregon district sales manager of *Fibreboard Products, Inc.* Robbins leaves post to become general sales manager of *Fibreboard Products (Eastern Division) Inc.*, a wholly-owned subsidiary, with headquarters in Philadelphia.

Western Asbestos Supply Co. is appointed distributor in Northern California and Western Nevada area by *Bolta Products Sales, Inc.*, Lawrence, Mass., for its wall and tile products and its vinyl plastic wall coverings.

Griffin Chemical Co. of San Francisco will give up representation of eastern chemical producers and confine all future activities to manufacture and sale of firm's own products. *Chemical-Additives*, a firm recently formed by HUGH N. MCCLANAHAN and HAROLD C. COLGROVE, is newly appointed representative for Griffin in Southern California area. Offices are at Vernon.

FRED JOYCE, JR. is appointed district sales engineer, Pacific Coast territory of *Metal & Thermit Corp.* He will handle all welding division lines and will operate out of firm's



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Western division headquarters, South San Francisco. C. W. HUMPHREYS is in charge of firm's new Southern California branch offices recently opened in Los Angeles. As a sales engineer for company's welding division, he will cover Southern California-Arizona area.

Headquarters of *L. J. Lutz Co.*, franchise representative of *Automatic Transportation Co.*, Chicago manufacturer of electric driven industrial trucks, moves from Los Angeles to Huntington Park, Calif.

E. E. KETCHPAW, recently of *American Photo Copy Co.*, is named manager, Los Angeles office of *Polychrome Pacific Corp.*, office supply distributing firm.

Pacific Intermountain Express Co. promotes FRANK R. MURRAY, formerly a company salesman in Salt Lake City district, to position of area's district sales supervisor. He replaces KENNETH A. PRETTYMAN who, at his own request, moves to firm's Sacramento, Calif., branch office.

ERNEST DAVIS is made a sales representative of *Ziegler Steel Service Co.*, Los Angeles division. His district includes Harbor area, east Los Angeles, Montebello, Whittier, Alhambra and surrounding industrial areas.

Pacific division headquarters in San Francisco and an office in Los Angeles are established by *Baker & Co., Inc.*, to coordinate and expand sales and service activities of seven companies of Engelhard Industries group. THOMAS G. FERRUGGIA is newly appointed general manager of division, San Francisco, and WILLIAM SCHMIDT, JR., will be in charge of Los Angeles office.



T. G. Ferruggia



R. L. Conlisk

RAIMON L. CONLISK is promoted to position of supervisor of distributor service of *Western Gear Works* and its associate companies. He moves from concern's San Francisco plant, *Pacific Gear & Tool Works*, where he served as supervisor of application engineering, to executive offices in Lynwood, Calif.

Materials Handling Equipment Co., Seattle distributing firm, is expanding present facilities and adding another building that will make an additional 11,000 sq. ft. of floor space to be used for storage and display.

Kittleson Co., Los Angeles, establishes a new branch office in San Francisco to handle Northern California sales for *Atomic Instrument Co.*, Cambridge, Mass., maker of nuclear instrumentation. Kittleson names H. F. GRAY, JR., manager of San Francisco office.

Horace Blackman Co., Beverly Hills, Calif., is named West Coast distributor for *U. S. Rubber Co.'s* Royalite tote boxes. Eleven Western states will be served.

WILLIS L. WINTER is appointed distribution apparatus manager for *Westinghouse Electric Corp.'s* Pacific Coast district. He was formerly assistant to manager of district's electric utility department.

Colorado Kenworth Corp. of Denver is new distributor in Colorado area for *Kenworth Motor Truck Corp.*, Seattle. R. D. O'BRIEN is named vice president, sales, by Kenworth Motors.

L. B. Foster Co., pipe, steel sheet piling and trackage supplier, establishes West Coast office in Los Angeles to serve states of California, Arizona, Utah, Nevada, Oregon, Washington, Idaho, Montana and Wyoming. HENRY E. FLEISHMAN, vice president of firm, heads new office.



H. E. Fleishman



B. Coon

Under a new regional distribution set-up, BYRON COON of Oakland, Calif., is now Western division manager for Delta power tool division of *Rockwell Manufacturing Co.* Territory includes Pacific Coast and Rocky Mountain states. Coon was formerly manager at High Point, N. C., plant of *DeLuxe Saw and Tool Co.*, a Rockwell subsidiary.

Parker Insulation Co., Salt Lake City, with warehouses on Denver & Rio Grande

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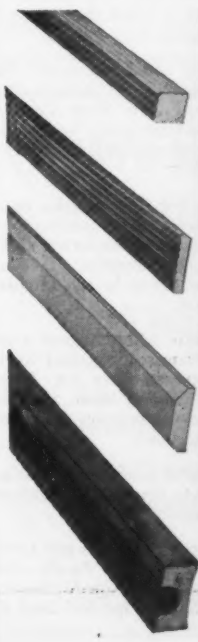
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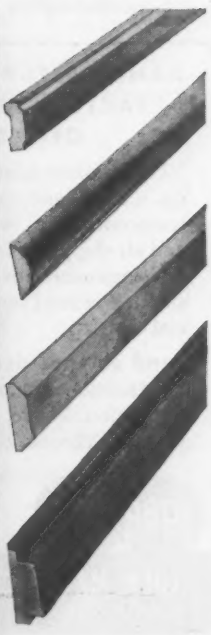
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YUBA MANUFACTURING CO.

Western railroad, will handle distribution of fiber glass in Salt Lake area for *Libbey-Owens-Ford Glass Co.*, fiber glass division, Toledo, Ohio.

Ealy & Hasting, electronic manufacturers' representative, moves to its new building in North Hollywood, Calif.

J. T. Hill Sales Co., Los Angeles, is appointed Arizona and Southern California representative for *Wald Manufacturing Co.*, Grove City, Pa., manufacturer of thermostatic action soldering guns, pencil irons and accessories.

Neely Enterprises, Hollywood, electronic engineering representative, adds two to its staff. JOHN DAVIS, professor of electrical engineering at University of New Mexico, joins Neely's Albuquerque branch. BRUCE SAVORY now heads firm's order department and expediting in Hollywood headquarters. He was formerly electronic buyer in purchasing department of both *Hughes Aircraft Co.* and *Northrop Aviation*.

Heat and Control, Inc., San Francisco, is selected as Pacific Coast representative by *W. S. Rockwell Co.*, Fairfield, Conn. Distributing firm is also named Pacific Coast representative by *Gas Appliance Service, Inc.*, Chicago. Heat and Control's southern division moves office to new location in Pasadena, Calif., and adds LINCOLN RALPH and CLAUDE MINTO to its staff.

Robert H. Braun Co. is named dealer for Ross straddle carriers and Ross heavy-duty fork lift trucks in Southern California. Appointment is made by *Clark Equipment Co.*, recent purchaser of *Ross Carrier Co.*

Jervis B. Webb Co. of California moves general offices and factory to new and larger quarters at South Gate, Calif.

White Motor Co. appoints FRED H. RAGAN as regional wholesale manager with headquarters in Salt Lake City. Formerly a sales representative at company's Los Angeles branch, his territory now embraces Utah, Idaho, eastern Washington, western Montana and part of western Wyoming.

Shoreline Metals Co., Los Angeles, is named exclusive West Coast distributor for *United Metal Box Co., Inc.*

GEORGE E. HURST becomes manager, West Coast division, Pasadena, of *Bulkley, Dunton Processes, Inc.*, New York City. He comes to California from firm's Toledo, Ohio offices where he served as sales engineer in Mid-Western area.

Kelite Products, Inc., Los Angeles, names RICHARD C. MARTIN as its national sales director. He will make headquarters at Kelite's main plant, Los Angeles. He comes from Dallas, Texas, where he was in charge of southern division.

HERMAN E. HELD, manufacturers representative in San Francisco, is named Northern California representative for *Electro Switch Corp.*, Weymouth, Mass., manufacturer of electric rotary switches for control and transfer applications.

Los Angeles district sales office of *Armco Steel Corp.*, moves to new offices in Tishman building in Los Angeles.

New wire rope products sales and service representation for *Bethlehem Pacific Coast Steel Corp.* in Arizona and New Mexico area is taken over by *Smith Pipe and Steel Co.* of Phoenix.

CENTRAL CONTROL to improve air freight

GREATLY improved service will be available to air freight shippers at major cities on United Air Lines system as a result of new centralized control procedures. Cargo expediters at Denver will now control freight allocations and routings in terms of each flight, its origin, destination and cities served enroute. Expediters will determine the fastest routings in the light of overall operations with through freight routed to through flights and local freight to local flights.

GENERAL MOTORS head emits a few figures

PRESIDENTS rush in where lesser brass fear to tread.

At the press, radio and TV luncheon given by General Motors in San Francisco in April, President Harlow H. Curtice announced that the corporation's Oakland plants produced 80,033 passenger cars and trucks last year, and at the time of his address were operating at the rate of 528 cars and trucks daily.

For several years past, *Western Industry* has been able to report in its Review and Forecast number the assembly totals for all makes of cars in the Pacific Coast automobile plants, that is, except for General Motors, who have only released a total figure covering their entire Pacific Coast production. All other automobile manufacturers have cheerfully cooperated and given individual car breakdowns, and separated cars from trucks.

If General Motors has enough presidents, perhaps in due course of time *Western Industry* will be able to give its readers the whole story.

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THE West ON ITS WAY

NEW PLANTS, EXPANSIONS, NEW INDUSTRIES, PRODUCTION CONTRACTS, DEVELOPMENT PROJECTS, UTILIZATION OF RESOURCES

1950-1960: DECADE OF OPPORTUNITY

SOME INTERESTING figures on the West's growth in the current decade have been put out by the NAM, as shown in the accompanying chart.

For capital requirements, however, the figures present an exaggerated picture, because the jobs that will be required to sustain the estimated 2,000,000 new workers in California specified by the NAM by 1960 are by no means confined to industry. Retail trade, service establishments and agriculture account for a large share of the employment.

The California State Chamber of Commerce reports a total for 1952 of $626,781,570 for new industrial plants and expansions in California. If this rate of expansion keeps up throughout the entire decade, the capital requirements for industry would be in the neighborhood of $6,000,000,000.

* * *

In the nine months from June 1952 to March 1953, $3,508,952,000 in prime military contracts were placed in the eleven Western states, making the total from July 1950 $15,155,943,000.

This constitutes a slight gain since June 1952 in the percentage of the national total allotted to the West. Last year the West's percentage was 17.3%, whereas by March of this year it had increased to 17.8%.

The breakdown by states in the West (in thousands of dollars), is as follows:

	Amount	*%*
Arizona	$ 148,954	0.2
California	11,154,860	13.1
Colorado	168,974	0.2
Idaho	34,843	—
Montana	23,017	—
Nevada	25,977	—
New Mexico	63,057	0.1
Oregon	239,759	0.3
Utah	64,842	0.1
Washington	3,213,586	3.8
Wyoming	18,074	—
TOTAL, 11 Western States	$15,155,943	17.8

* * *

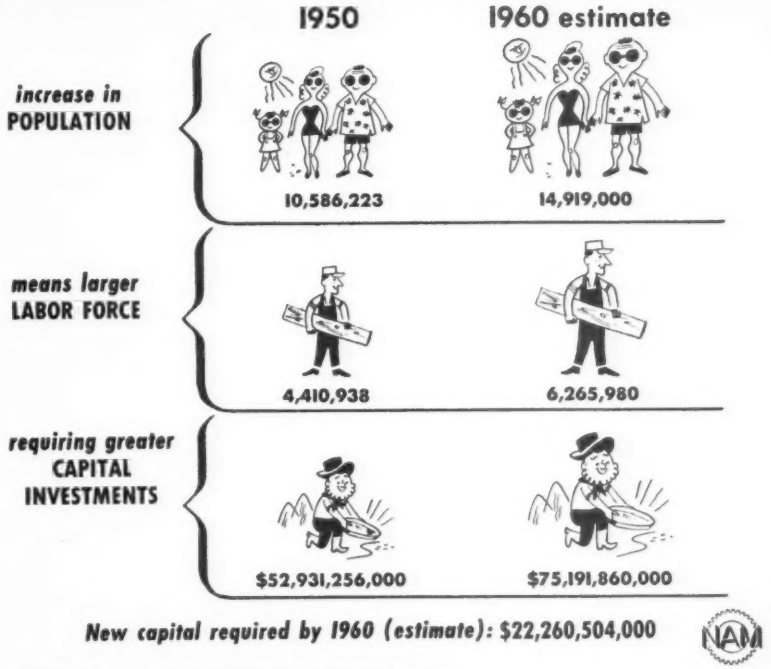
From 1940 to 1951 the nation's production of wire and wire products for sale rose 80%, while in the seven Western States, steel wire production for the same period rose 322%, according to Robert W. Oliver, manager of commercial research, Columbia-Geneva Steel Division of U. S. Steel.

Speaking before the Pacific Coast regional meeting of the Wire Association in San Francisco in June, he pointed out two significant changes. First is the growth of local industry supplanting products hitherto produced in the East and shipped West. The other is the definite shift toward wire of higher carbon content.

The trend toward higher carbon wire he ascribed to the growth of such products as spring wire, high tensile bolts and fasteners, and wire for prestressed concrete.

Pacific Coast assemblies of cars and trucks rose from 250,000 in 1940 to 650,000 in 1950. In other words, about two-thirds of the new car registrations were locally assembled in 1940, while in 1950 the percentage had risen to 73%. Fabrication of springs and assembly of auto seat cushions in the West have kept pace with this growth, he said.

The Western furniture industry, with a 50% gain in the last 11 years, also has grown as a wire market. Other new and expanded markets are the electrical industry, automatic hay baling machines, the home construction industry, electronics.



SOURCE: U. S. Bureau of Census and National Association of Manufacturers

ALTHOUGH this pictorial presentation by the National Association of Manufacturers covers only the state of California, its significance applies to the entire West, for each state is having its own share of expansion and development.

ARIZONA

STREAMLINING — Southwest Lumber Mills, Inc., McNary, undertake $1,000,000 plant modernization program. At McNary mill, shed for rough lumber storage will be built, automatic stacking equipment and dry sorter installed, and dry kilns modernized. At Snowflake and Overgaard mills, new machinery will be installed. Program is scheduled for completion before winter.

COPPER CONTRACT—Banner Mining Co., Tucson, is awarded contract by Defense Materials Procurement Agency for 12,960,000 lbs. of refined copper to be produced over a three-year period. Production will begin around May 1954 at Mineral Hill and Plumed Knight properties in Pima County, which are to be developed and improved. A 400-ton concentrator is planned, together with office buildings. Banner will contract for refining of ore concentrates into electrolytic copper, which DMPA will buy at 31c per lb. Government will also buy at market prices molybdenum and tungsten produced as byproducts. Controlling interest in Banner Mining Co. is now held by group made up of Tintic Standard Mining Co., U-Tex Oil Co., and John M. Wallace, all of Salt Lake City, and L. L. Travis, Dallas, and Earl Hollandsworth, Longview, Texas.

STEEL BALL PLANT—National Malleable Steel Castings Co. obtains building permits for the second section of plant under construction at Kyrene. Construction, totaling $862,962, will include an additional foundry building, office and first-aid units. First section of plant will begin operation late this year.

HUGHES AIRCRAFT MAY EXPAND—Construction of new facilities at guided missile plant in Tucson to the amount of several million dollars is planned by Hughes Aircraft Co., conditional upon Air Force approval. Plant, which manufactures F-98 Falcon missile, cost $12,000,000 and employs 1,300 persons.

CALIFORNIA

RECORD BREAKER — Machinery and Equipment Co. of San Francisco acquires machinery storage yard said to be largest of its kind West of New York. Graded 2½-acre yard will have buildings for warehousing and rebuilding equipment.

COLD STORAGE WAREHOUSE—Construction begins on 27,000-sq. ft. cold storage warehouse for Pajaro Valley Cold Storage Co., Watsonville. Pre-cast concrete structure, to be finished in September, is being built by Johnson & Mape Construction Co., Inc., Menlo Park.

DOZEN SQUIRREL CAGES—Westinghouse Electric plant, Sunnyvale, delivers first of twelve 900-hp. "squirrel cage" motors, costing $300,000, ordered by Bingham Pump Co. of Portland, Ore. Each motor measures 9 ft. high by 7 ft. in diameter and weighs 32,500 lbs. with flywheel. Delivery of remaining motors will be made by January.

RESEARCH LABORATORY — Truesdail Laboratories, Inc., Los Angeles, sets up new microanalytical laboratory.

RADIOCHEMICAL LABORATORY — Tracerlab, Inc., begins construction of radiochemical and engineering laboratory in Richmond for its Western division operations. Architects are Paul Hammarberg and Carlton Steiner of Berkeley; construction firm, Carrico and Gautier, San Francisco. Building, scheduled for completion by November, will have area of 15,400 sq. ft. and will cost over $100,000. Tracerlab, with headquarters in Boston, processes radioactive isotopes for use in medicine and industry and produces electronic instruments.

JOINT VENTURE — Stillman Rubber Co., Culver City, joins John F. Drescher, aircraft armament engineer, in formation of new venture designated Microloc for research and design of electro mechanical aircraft armament devices. Stillman Rubber designs and produces molded rubber products for aircraft and industrial use.

McCULLOCH BUYS PLANT—McCulloch Motors Corp., Los Angeles, acquires property and equipment of Westchester plant of Surface Alloys. Purchase includes 1.8 acres of land and 2-year-old plant fully equipped for electroplating. Surface Alloys will retain offices and laboratories at this location and will continue chemical control work for McCulloch plating operations, transferring production activities to its Huntington Park plant. This is McCulloch's fifth major purchase in past two years.

FIRM GROWS IN BERKELEY—Morrill Plumbing and Heating opens new shops and offices in 30,000-sq. ft. plant at 9th and Anthony Sts., Berkeley. Firm continues to use its former quarters in Oakland, where it has display rooms, offices and shops.



CONSTRUCTION STARTS—Shown here is architect's drawing of Plexolite Corp.'s new manufacturing plant in El Segundo, near Los Angeles Airport. Building, designed by George Novikoff of Los Angeles, has over 30,000 sq. ft. of floor space, also railroad siding and auto parking area. Investment in new plant will top $250,000. October 1 is target date for completion. Company manufactures glass fiber reinforced plastic building material.

FIRM PURCHASED—Cooper Precision Products, Los Angeles manufacturer of hex-head bolts for aircraft, becomes wholly owned subsidiary of Standard Pressed Steel Co., Jenkintown, Pa. Cooper retains its own management and sales organization.

MORE SPACE—Ampex Electric Corp., producer of magnetic tape recorders, leases building across from main plant to house its stores and purchasing departments. Addition of 4,000 sq. ft. floor space gives Ampex total area of about 55,000 sq. ft. in Redwood City.

DAIRY PRODUCTS MERGER—Creameries of America, Los Angeles, plan to merge with Beatrice Foods Co., Chicago. Plan, which requires approval of stockholders of both companies, calls for Creameries stockholders receiving Beatrice shares.

PRESS BUILDING—Arts & Crafts Press, San Diego, plans new $100,000 building to replace one recently destroyed by fire. M. H. Golden Construction Co. is builder. Arts & Crafts will also purchase press, bindery, and composing room equipment of Dove & Robinson, Ltd., their temporary quarters until planned building is ready for occupancy.

APPROVE EL PASO EXPANSION—Federal Power Commission approves $175,000,000 pipeline expansion program of El Paso Natural Gas Co. Another 1,056 mi. of pipeline will be constructed, permitting delivery of additional 400,000,000 cu. ft. of natural gas per day to California, Texas, New Mexico and Arizona. El Paso will be supplied 300,000,000 cu. ft. per day of additional gas from Permian basin in southern New Mexico and West Texas and 100,000,000

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FIRST WESTERN PLANT—American Reeinforced Paper Co., manufacturing division of Sisalkraft Co., opens Western Division plant at Tracy for production of building and insulation papers and other reinforced protective papers. New $750,000 plant is located on 30-acre site within city limits.

cu. ft. from San Juan basin in New Mexico and Colorado. New construction of pipeline by Pacific Gas & Electric Co., San Francisco, and Southern California Gas Co. and Southern Counties Gas Co., both of Los Angeles, is also approved by FPC. PG&E will build 227 mi. of pipeline at a cost of $26,700,000; Southern Calif. and Southern Counties will build 73 mi. at about $7,500,000.

CONNOR SPRING EXPANDS—Connor Spring Manufacturing Co., San Francisco and Los Angeles, acquires stocks and equipment of Mechanical Spring Division, L. A. Young Spring and Wire Corp., San Leandro. Material purchased will be divided between Connor's San Francisco and Los Angeles plants, increasing total capacity by an estimated 25%. Young Corp. will continue manufacture of wire products such as display stands, baskets, and shelves.

MOTOR FREIGHT TERMINAL—Consolidated Freightways opens new $750,000 terminal in Los Angeles. Facilities include 80 x 245-ft. freight dock, with 2-story office building, and 26,000-sq. ft. shop building for servicing equipment. Merry-go-round type chain conveyor, 540 ft. long, serves loading bays.

CHEMICAL PLANT OPENS—Cee-Bee Chemical Co. opens new $175,000 plant and offices in Los Angeles. Company produces anti-corrosion and anti-sludge chemicals for use in automotive and aircraft industries.

PATENT PURCHASE — Rotor-Craft Corp., Glendale, purchases all U. S. and foreign patents of Landgraf Helicopter Co. of Los Angeles and gains control of "rigid rotor" principle for helicopters. Purchase price is not disclosed. Advantages of rigid-rotor helicopters are said to be economy of production and safety of boarding craft.

ADD 350 ACRES — Western Pacific Railroad Co. integrates another 350 acres into its 1,000-acre industrial land holdings near Milpitas. Industrial area will be supplied utilities and storm drainage system to make land attractive to prospective users.

STATE'S FIRST COTTON MILL — Measure passed by California Legislature provides for production of cotton cloth, not to exceed value of $1,500,000, in an expanded prison industries program. First cotton textile mill for California will be in operation at San Quentin Prison in about a year and a half, employing 500 inmates.

THIRD BLAST FURNACE — Kaiser Steel Corp., Fontana, puts into operation new blast furnace with rated capacity of 438,000 tons of pig iron per year, similar to other two furnaces at mill. Furnace completes major portion of Kaiser Steel's current $65,000,000 expansion program.

NAVY BUILDS PIPELINE—Construction begins late this month on fuel pipeline from Point Loma to Miramar Naval Air Station.

NEW QUARTERS—Airsupply Co., a Garrett Corp. division, moves to larger quarters in new two-story building on Wilshire Blvd. in Beverly Hills.

EXPLORE ATOMIC ENERGY—Kaiser Engineers, Oakland, establishes atomic energy division to explore industrial uses of atomic power and radioactive by-products. J. H. Hayner, formerly of AEC, is appointed division manager.

BUY INDUSTRIAL LAND—Kaiser Steel Corp. adds to its holdings near Fontana



steel plant two parcels of land totaling about 570 acres. Atchison, Topeka and Santa Fe Railway Co. buys 150 acres adjoining an earlier purchase of 140 acres. Total industrial property now available in Fontana area for new enterprises is said to be about 1,500 acres. No definite plans have been made for its use.

LIGHT-INDUSTRY DEVELOPMENT—Portion of Mary Ives Crocker estate totaling 100 acres within the city of Santa Clara is sold to Ronald Williams, Palo Alto, for light-industry development. Construction, under a master plan controlled by developer, will begin soon on single-story plants on one- to ten-acre sites, for lease or sale. Negotiations with prospective industries for area are in progress. Project is expected to be completed in about a year.

STOCK PURCHASE—General Water Heater Corp., Burbank, acquires Palm Manufacturing Co., San Mateo, through purchase of stock. Palm Manufacturing produces circulating air wall heaters.

CONSOLIDATE—Efficiency Carbon & Ribbon Co., Red Feather Products, and Redwood Carbon & Ribbon Co., all of San Francisco, consolidate to form West Coast Carbon & Ribbon Co., Inc. New firm will have a branch office in Los Angeles.

DIVERSIFY PRODUCTS—Longren Aircraft Co., Torrance, begins manufacture of special metal-forming presses and equipment.

TV FILM PRODUCTION — Republic Pictures Corp., Hollywood, builds four new sound stages at total cost of $400,000, to be used mostly as rentals for increased TV movie production. Republic also completes $2,000,000 expansion of its Consolidated Film Industries division, which develops and prints movie film, and plans $500,000 enlargement of facilities for handling color film.

COLORADO

FREIGHT LINES MERGE — Navajo Freight Lines, Inc., and Fleetways, Inc., merge. New firm will continue to use name Navajo Freight Lines, Inc., with headquarters in Denver.

HALF-MILLION-DOLLAR FIRE—Surface shops and sheds of Idarado Mining Co., Ouray, are destroyed by fire, which spares main mill. Damage, said to exceed $500,000, is covered by insurance.

SEEK SITE—Magma Corp. of Chicago searches for plant site in Denver for production of new fertilizer using phosphate and nitrogenous waste found in mine dumps. Product is now manufactured by companion company, Western Mines, Inc., Denver, with daily output of about 30 tons.

PROPOSE NEW DENVER SUBURB—Victory Housing Corp., Denver, files rezoning petition to permit construction of an entire new city about one mile north of Denver city limits, to house population of 20,000, with parks, schools and shopping centers. Company is presently acquiring options on nearly two square miles of land.

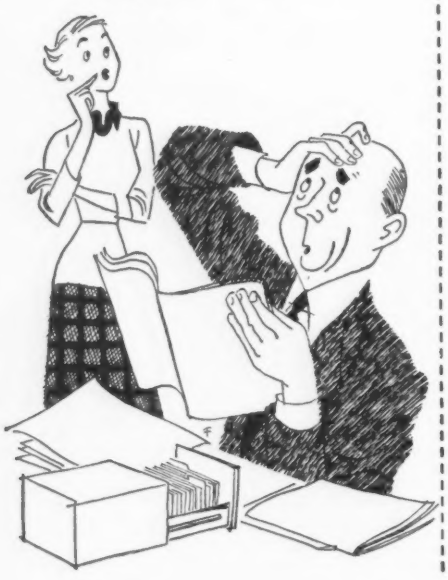
TWENTY-YEAR GAS CONTRACT—Pacific Northwest Pipeline Corp., Houston, reaches agreement with Specialty Gas Products, San Francisco, to supply liquid byproducts from Durango, Colo., field over a period of 20 years at a price of $150,000,000. Sale is contingent upon approval by Federal Power Commission of Pacific Northwest's proposal to construct 1,200-mi. pipeline for transmission of natural gas from San Juan Basin to Northwest coast.

ORE DISCOVERIES—Bureau of Mines says that 57 ore discoveries have been made from a total of 149 contracts granted under Defense Minerals Exploration Administration's two-year-old program. Of these, 13 are already certified as ore reserves in quantity to warrant commercial production, and 22 operators are producing and shipping ore. Colorado leads with 26 discoveries; Utah is second with 17. Total estimated investment of operators under DMEA program is over $7,300,000, with government providing about $4,200,000.

IDAHO

IDAHO APPROVES MERGER—Washington Water Power Co.'s plan for financing proposed merger with Puget Sound Power and Light Co. receives approval of Idaho Public Utilities Commission. Proposal also requires approval of Washington Public Service Commission, FPC, and stockholders of both companies.

What is that supplier's name?



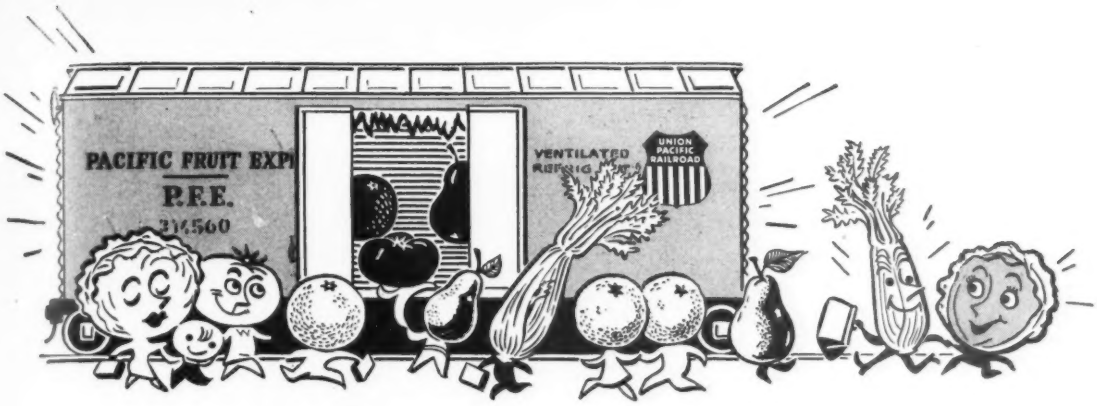
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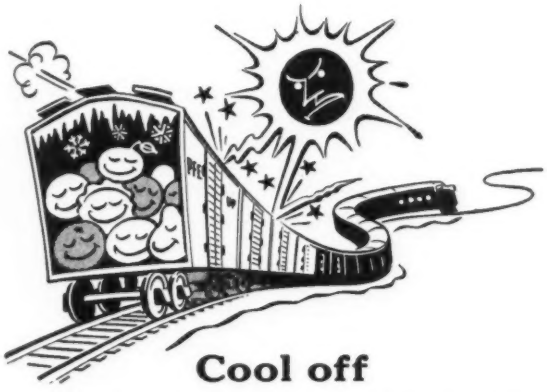
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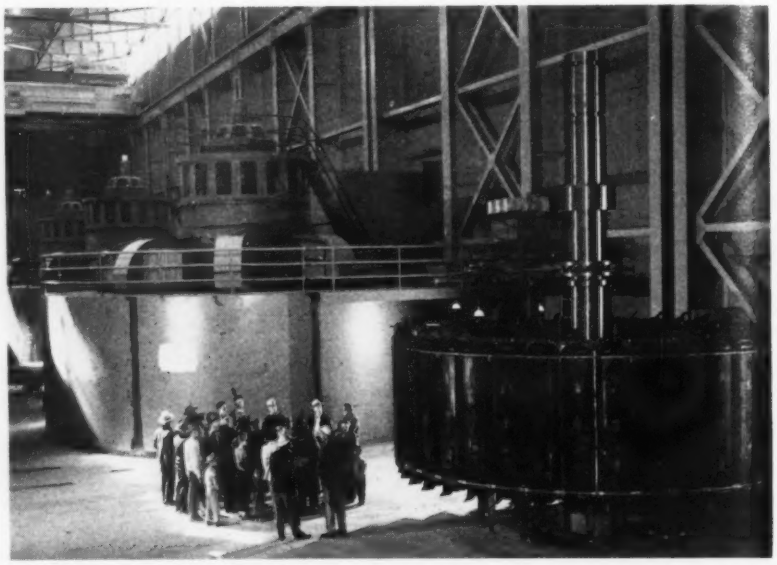
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SNAKE RIVER PROJECTS — Federal Power Commission consolidates, for hearing and consideration, three license applications of Idaho Power Co. for power projects on Snake River at Oxbow, Hells Canyon, and Brownlee.

LANG BUILDS AT BOISE—Lang Co., Inc., Salt Lake City, manufacturer of storage and truck tanks, will build new office and warehouse at Boise by mid-August, primarily for use by its oil and truck equipment divisions.



HUNGRY HORSE POWERHOUSE—Bureau of Reclamation engineer shows visitors 1,000,000-lb. rotor (right) for fourth generator at Hungry Horse Project, Columbia Falls, Mont., recently put into place. First three generators, ready for service, are shown in background.

MONTANA

BARITE PRODUCED—Elk Creek mine and mill of Finlen & Sheridan Mining Co., Butte, is producing 12 to 14 cars of pulverized barite and 4 to 6 cars of crushed ⅜-in. barite per week, in what is said to be a new industry for Montana.

ALUMINUM FOR TEAKETTLE—Anaconda Aluminum Co., subsidiary of Anaconda Copper, begins construction on Columbia Falls reduction plant on 750-acre tract at base of Teakettle mountain. Excavation and concrete work on $45,000,000 plant is awarded F. A. McNeil Co., Alhambra, Calif. Plant when completed will employ about 450 persons.

NEVADA

OCTOBER TARGET DATE — Metallurgiacl plant of Anaconda Copper Co. at Weed Heights will begin operations in October, with an output of over 5,000,000 lbs. of copper precipitates per month.

NEW MEXICO

QUARTET—Permian Basin Pipe Line Co., a 55% subsidiary of Northern Natural Gas Co., Omaha, begins construction of compressor station, sulphur removal plant, dehydration plant, and gasoline plant at Hobbs. Plants will be built by Dresser Engineering Co. of Tulsa, Okla., and feeder lines to plants by R. H. Fulton Co. Total cost will be about $2,000,000, said to be the start of $100,000,000 expansion undertaken by Northern Natural.

NEW PLANT AT LOVINGTON—Construction starts on natural gasoline plant at Lovington for Warren Petroleum Corp., Tulsa, Okla. Planned capacity of plant is 22,000,000 cu. ft. of gas daily. Schedule calls for completion by February 1, 1954.

OPEN FOR BUSINESS—New Mexico branch of Big Three Welding Co., with headquarters at Fort Worth, Texas, begins operation at Albuquerque in facilities leased from Banes Co. New firm will manufacture oxygen and acetylene and handle welding equipment and air compressors.

OREGON

CINDER COLLECTION SYSTEM — Crown Zellerbach Corp. approves $80,000 project to install cinder precipitator unit at its Lebanon paper mill. Precipitator unit, installed between mill boilers and a planned new stack, will collect cinders by mechanical means and force them back into the boilers to be burned.

WONDER EARTH — Newly incorporated Malheur Wonder Earth Co., Vale, capitalized at $250,000 by predominantly Portland interests, plans to start excavating and milling diatom deposits in Harper-Westfall area by August. Mill at Harper, on Ontario-Burns railroad



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ALDEN G. ROACH

President, Columbia-Geneva Steel Division and Consolidated Western Steel Division, United States Steel Corporation

"It is most gratifying to me that the employees of the Columbia-Geneva Steel Division and the Consolidated Western Steel Division of United States Steel Corporation have accorded meaning to their belief that the security of our nation rests upon our cooperative effort. The enthusiastic response of our employees made me doubly glad we conducted a person-to-person canvass for the Payroll Savings Plan for U. S. Defense Bonds."

The experience of Columbia-Geneva and Consolidated Western Divisions of United States Steel Corporation is not an isolated one.

Since January 1, 1951, hundreds and hundreds of companies have conducted person-to-person canvasses of their plants and offices. In every instance, employee participation in the Payroll Savings Plan has increased—sometimes from a low figure—to 60, 70, 80%. In a number of plants, participation passed the 90% mark.

The explanation is simple.

Employees *want* to provide for their future security.

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As a step toward *your* personal security, and the security of your associates, bring this page to the attention of your top executive. Tell him that—

- a person-to-person canvass of your plant can be conducted without pressure, prize awards or other stimulation. (In many plants, employee organizations have undertaken the actual distribution of Payroll Savings Application Blanks.)
- The Savings Bond Division, U. S. Treasury Department, Suite 700, Washington Building, Washington, D. C., will gladly help your company with suggestions, posters, envelope stuffers and other aids.

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line, will have capacity of 100 tons daily and employ about 30 persons on 24-hr. basis. Firm has leased about 2,700 acres of diatom deposit lands and filed claims on another 1,280 acres.

CHEMICAL CLEANING — Industrial Chemical Service station opens in Portland for cleaning and maintenance of industrial equipment, particularly removal of water-deposited scales and sludges. Industrial Chemical Service Co. is a wholly owned subsidiary of BJ Service, Inc.

HARVEY PLANT SITE—Harvey Machine Co., Torrance, Calif., purchases additional 450 acres of land at The Dalles, at estimated cost of over $85,000, for planned $65,000,000 aluminum reduction plant. Seventy-three acres were purchased earlier.

ALCOA REORGANIZATION — Alcoa Mining Co., subsidiary of Aluminum Co. of America, will be liquidated and its operations transferred to new mining division of parent company in corporate reorganization move. Alcoa Mining has bauxite holdings in Oregon, Colorado and Alaska.

HARDBOARD PLANT FOR JAPAN—Mater Machine Works, Corvallis, is building hardboard-forming machinery for new Chapman-process plant under construction at Nagoya, Japan, for Mitsui Lumber, Ltd. Plant was ordered through C. T. Takashi & Co., Seattle.

PLANT CLOSES—Kaiser Gypsum Division of Henry J. Kaiser Co. fails to renew one-year lease and option on Dant and Russell perlite aggregate quarry and plant near Maupin. Plant, which employed 65 persons, is now closed.

UTAH

OGDEN RAIL YARD EXPANSION—Union Pacific and Southern Pacific railroads undertake $4,000,000 expansion of jointly owned facilities at Ogden. East yard of Ogden Union Railway and Depot Co. will be improved with construction of 111,900 ft. of yard trackage, overhead viaducts, office buildings, control towers and floodlighting and communication systems. Refrigerator-car icing facilities for Pacific Fruit Express will be enlarged and more highly mechanized. In addition, Union Pacific will build four-track repair yard with auxiliary buildings. When projects are completed, east yard will handle all eastbound freight traffic and present main yard will be used only for westbound.

ANTI-FREEZE PLANT — Stratosphere Products Corp., Los Angeles, leases building in Salt Lake City for manufacture of anti-freezes, to begin by September 1. Firm plans 10-year program of expansion into other chemical fields, particularly fluorine-base chemicals and ammonia, at its Salt Lake plant, using local sources of raw materials.

NATURAL GAS DISCOVERY—Three States Natural Gas Co. finds natural gas in Dakota formation at Flat Canyon, Emery County, in what appears to be a commercial discovery. New source may mean increased supplies of natural gas for Utah Natural Gas Co. under its purchase contract with Three States.

WASHINGTON

AEC CONTRACT AWARDS—Contract is awarded Grove, Shepherd, Wilson & Kruge, Inc., Seattle, by Atomic Energy Commission to construct 15 underground tanks for waste storage inside Hanford Works barricaded area. Bid was $2,428,468. Cisco Construction Co., Portland, receives contract for constructing pump houses, underground water lines and transformer substations and installing pumping equipment, to supply Richland with additional water. Bid was $172,000. Leingang Construction, Yakima, submits low bid of $29,926 for moving auxiliary civil defense center for Hanford Works.

LEASE PLANT—Yakima County Processors, Grandview, lease plant from Yakima Valley Grape Growers Association at Grandview for processing concord grapes.

MOVE EAST — Brown Trailers, Inc., Spokane, will move its operating headquarters to Toledo, Ohio, retaining executive offices and headquarters of board of directors in Spokane. Firm produces aluminum truck trailers, truck bodies, and refrigerator boxes. Holdings include a plant in Spokane.

TANK FARM—Tidewater Terminal Co. is granted certificate of necessity by ODM for $464,923, to cover 40% of total cost of its new tank farm for bulk petroleum. Faculty is under construction east of Pasco.

LUMBER MILL BURNS—Fire destroys Central Lumber Co. plant in West Kelso, with loss estimated at $80,000. Most of loss is covered by insurance.

MAY MOVE — Western Aluminum Corp., Seattle, annuonces that refusal of railroads to grant lower freight rates may lead to company's moving part of its aluminum roofing operations to California. Western and other aluminum manufacturers are expected to protest freight rates before Interstate Commerce Commission.

EXPLORATION AGREEMENTS—Polaris Mining Co., Spokane, embarks on $675,000 exploration program on mining properties in Idaho of Coeur d'Alene Mines Corp., Merger Mines, Silver Standard, Rainbow, Callahan Consolidated, Coeur d'Alene Consolidated and American Silver. Agreements under negotiation with these companies provide that Polaris will bear all costs and receive 40 to 50% of ore found.

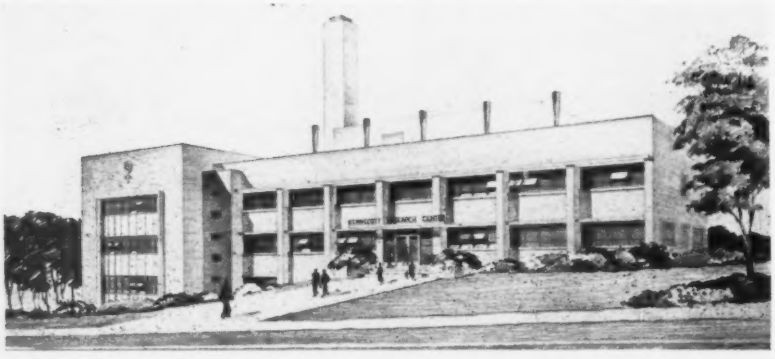
WOOD RESEARCH—National Lumber Manufacturers Assn. plans research and market development program for the next ten years at a cost of $1,000,000, to be financed by individual lumber companies. Program will study utilization of low-grade lumber through lamination processes.

MOVE TO ELLENSBURG — Hasco Corp., Seattle, plans to move Kittitas plant to Ellensburg as first step in expansion program. Plant will manufacture new hydraulic loader patented by Paul Manor as well as other products.

LEASE GRANTED — General Services Administration of Federal Government leases major part of Spokane magnesium plant to Pacific Northwest Alloys, Inc., for ten years. Minimum annual rental is $158,000, plus percentage on gross sales. Pacific Northwest will produce ferro-alloys. Under terms of lease, plant may be reconverted to magnesium production on short notice.

ACCEPT BRITISH BID — Army accepts low bid of $1,761,317 for supplying ten transformers for Chief Joseph Dam, submitted by English Electric Export and Trading Co.

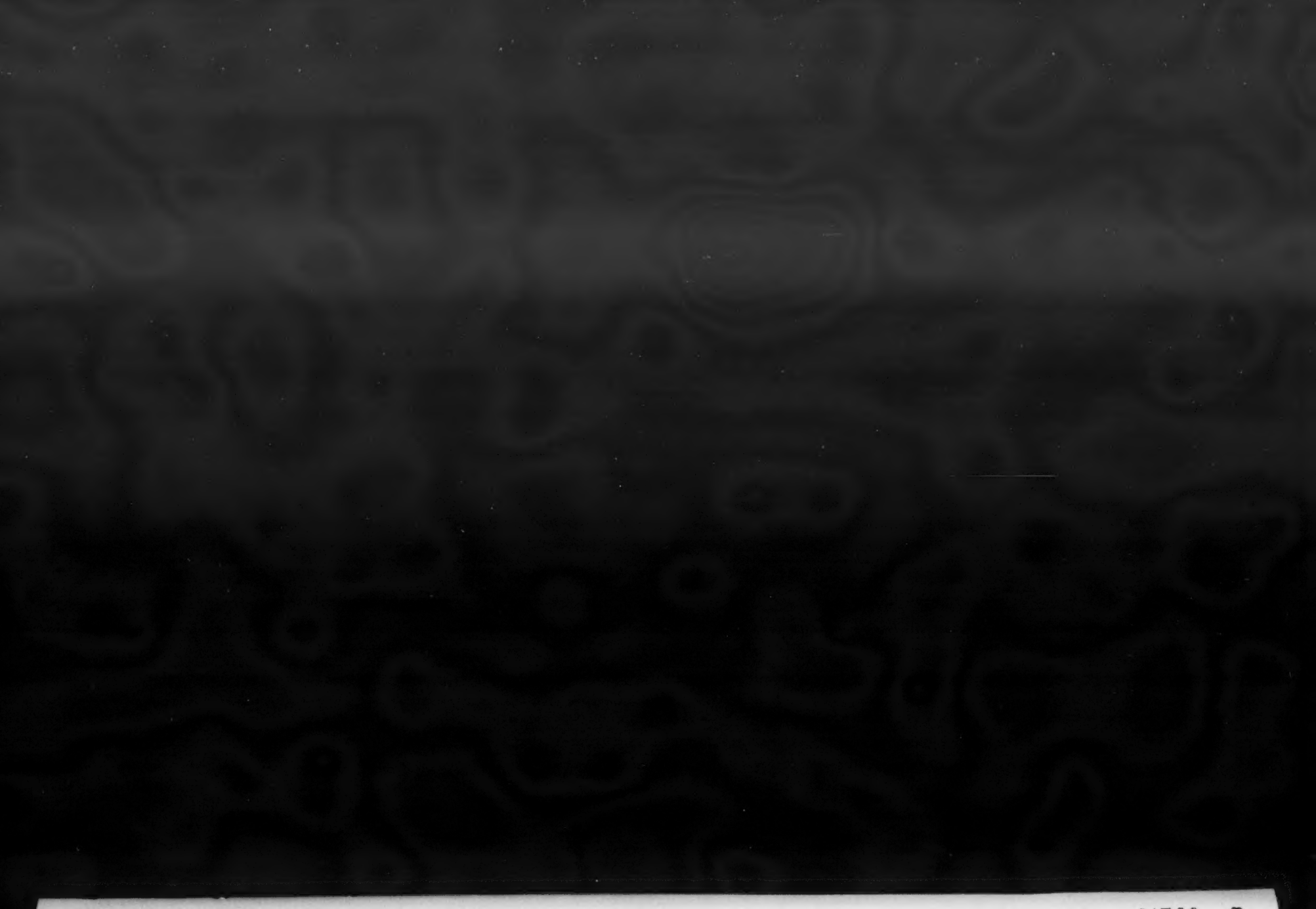
KENNECOTT RESEARCH CENTER—New research center for Kennecott Copper Corp. under construction on University of Utah campus will be ready for occupancy late this year. Of steel and brick construction, building will front on First South Street. Estimated cost of building and equipment is about $1,250,000. Jacobsen Construction Co. is builder. S. R. Zimmerley, director of research for Kennecott's Western Mining Divisions, heads staff of about 50 scientists and assistants who will use facilities.



WYOMING

FIRST BATCH—Government's experimental alumina plant at Laramie produces first alumina from anorthosite. Test operations by Bureau of Mines are to continue through June 30, 1954, to determine whether process is economically feasible.

WYOMING TO BE FREE PORT—Wyoming joins Nevada and Arizona in "free port" policy providing that goods originating outside the state and scheduled for delivery at outside points can be stored tax free in warehouses within the state.



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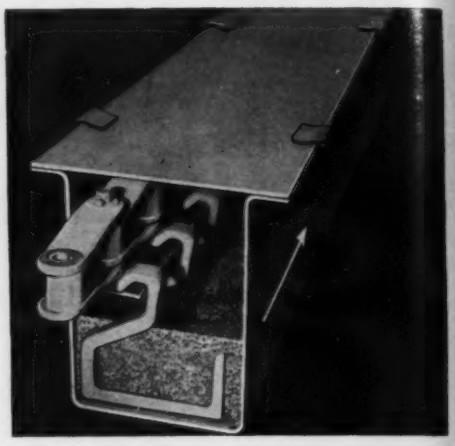
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